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This Issue Is Not Confidential

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This issue is one of 4 *Bulletins* issued during the year by Consumers' Research which are not confidential. This *Bulletin* may be freely discussed with friends. We hope that you will use the opportunity to show them what CR is doing for consumers. The *General Bulletin* is available not only to individuals, but to libraries, schools, and other groups, at \$1 for the subscription year October through June. The next non-confidential issue will be the April, 1938, number. Responsibility for all specific statements of fact or opinion at any time made by Consumers' Research lies wholly with the technical director and staff of the organization. Please send notice of any change of address at least two weeks before it is to take effect, accompanying your notice with statement of your previous address. Duplicate copies cannot be sent to replace those undelivered through subscriber's failure to send advance notice, except at the regular price for orders of such material as back issues. N.B.—For a detailed account of CR's early history, policies, and information as to the answering of special inquiries about commodities, subscribers are urged to read the *Introduction to Consumers' Research* which is sent to anyone without charge. Symbols used to indicate sources of data and bases of ratings:

- A—recommended on basis of quality.
- AA—regarded as worthy of highest recommendation.
- B—intermediate with respect to quality.
- C—not recommended on basis of quality.
- cr—information from Consumers' Research's own tests or investigations.
- 1, 2, 3—relative prices, 1 being low, 3 high.
- 37, 38—year in which test was made or information obtained by the staff of Consumers' Research.

Off the Editors' Chest

YOU ought to tell consumers," said one CR subscriber, "how to go about getting a satisfactory adjustment when they have purchased something that doesn't function properly after a short interval." This is a difficult field, in which definite and precise rules of procedure cannot be laid down. Oftentimes, consumers have not the patience to persist in the face of the inability of the local dealer to get results. A favorite tactic is to refer the complaint from the local office to the district office, to the home office, and back again. By that time, the situation may be of more academic than practical importance, because the consumer has found it necessary to bring about the repair of the appliance at his own cost—especially if the case is one of an oil heater which stops functioning in a spell of cold weather in January or of a refrigerator that stops working in July.

The subscriber who brought up this subject remarked that consumers will be better served when they learn to *write* their complaints. It is, of course, much easier to call up the local dealer from whom the purchase was made and read him the riot act. The dealer, however, can take it. He knows that perhaps nine times out of ten, the home office will never know about this particular case and that he can get by with a few polite words of regret or, perhaps, a little tinkering by a serviceman. Again he may honestly try to remedy the difficulty but be unable to make any fundamental adjustment because the policy of the home office requires him to take the loss himself if the appliance happens to be a "lemon," poorly made at the factory.

A letter written to the local dealer with a copy sent to the head man in the company is a much more effective procedure. If you have trouble with a newly purchased General Electric refrigerator, set forth your difficulties simply and clearly in a letter to the dealer from whom you purchased it—and be sure that Mr. Swope gets a carbon copy.

Be intelligent, be reasonable, be absolutely fair, make no statement you are not prepared to substantiate to the fullest, but be persistent and firm. Don't lose your temper when you are given the "run-around," but make it very plain that you recognize the technique and that you do not propose to accept such treatment. Most of us are inclined to regard "face saving" as somewhat unnecessary, perhaps a bit silly. However, the chances are that a manufacturer will be more disposed to regard your complaint as reasonable if you do not insult him, his sales organization, and his research department from top to bottom. There are certain indications that American disciples of Stalin have decided that a "consumers' front" may provide an excellent screen for some of their political activities. In that event manufacturers, dealers, store keepers, and others will be flooded with complaints that resemble a *New Masses* or *Daily Worker* polemic in tone. You will be well advised, therefore, to devote as large a part of *your* letter as possible to the substantial realities of the problem and as little as possible to how you *feel* about the management and its local and other representatives.





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SHAVING SOAPS

A WRITER on shaving soaps in one of the trade magazines advises soap manufacturers that in selling cosmetics in packages "size should be based not on cost, but on 'how soon dare you bring them back to lay cash on the line for the next package.' " Proceeding on this businesslike principle, shaving cream manufacturers, by a liberal expenditure for advertising, manage to collect from the average user a dollar or two a year more than he ordinarily needs to spend. With fifteen to twenty cents' worth of shaving soap bought by the pound and used unstintingly, a man can shave every day for a year—even five cents' worth is more than sufficient for a year's shaving when used somewhat frugally. With the much advertised lathering shaving creams, the cost will amount to a dollar or two a year; with latherless creams, to perhaps two or three times this figure.

The trade magazine writer already quoted observes: "A thick nickel is about top for the round flat 2-ounce (or the chiseler's deep-die short-change 1¾-ounce) shaving soap these days.... There is not much incentive for attempting to break into ... [this] market." Advertising, accordingly, has been directed toward urging the consumer away from the more economical soaps to the more expensive shaving creams, where money is to be made by bringing the customer back to "lay cash on the line for the next package" just as soon as he practicably can be made to do so.

The remarks on shaving cream by another writer, although written in a trade journal for the soap trade, are very interesting to the consumer as an illustration of the questionable methods of selling goods which shaving cream manufacturers are willing to use. "Sometimes," he writes, "a small amount of a particular ingredient is added solely for patent purposes. Such a patented shaving cream offers the selling point that it contains a special ingredient protected by patent, which no other manufacturers are permitted to use. The implication is that this product is a unique invention and therefore superior to competitive products. The advertising matter does not necessarily state what the particular ingredient is or what specific purpose it serves, if any." In the category of this device of selling unique qualities, existent or non-existent, significant or trivial, may be found the advertised superiorities of many of the widely known brands of shaving cream—the vitamin F of *Wards*, the small-bubble lather of *Colgate's*, and the "secret formula" of *Ingram's*. The same technique, we may add, has been a bell-ringer for tooth paste, face and hand lotions and creams, and many other cosmetic specialties.

POGONOLOGICAL OBSERVATIONS

An article on the "Factors Involved in Satisfactory Shaving," by Lester Hollander and Elbridge J. Casselman, was recently published in the *Journal of the American Medical Association*. The article gives the conclusions reached by observations of thirty-one scientists who participated in shaving tests over a period of four years.

It is perhaps not surprising that many of the conclusions reached by this capable group of observers should agree with those of the ordinary man who, after shaving for forty years, has himself become something of an expert in the art of pogonotomy; but even though the ordinary man may rightly consider himself an authority on shaving, he will nevertheless be likely to learn something from the conclusions of these investigators, and to find some of them worth testing for himself. "Dull blades, incompletely softened hairs, or improper shaving angles are the main causes of unsatisfactory shaving," say these investigators. "The best shaving soap devised does not compensate for the use of cold water or for a dull blade. On the other hand, the use of hot water, a preparational time of from two and one-half to three minutes, and a sharp blade in a correctly designed razor make the use of any non-irritating soap perfectly satisfactory whether a brush is used for lathering or not.... The primary purpose in preparing the face for shaving is to modify the initial hard condition of the hair-shaft ... not less than three minutes' preparation is required to soften the hair for the most satisfactory shaving conditions."

Softening of the hair is accomplished by the action of water, and was found by the investigators to be aided by soap and to be greatly speeded by having the water hot. To prepare the face best for shaving, it is recommended that the face be thoroughly washed with toilet soap and hot water for a half minute and rinsed so as to remove dirt, sweat, sebum. The shaving soap should then be rubbed on the face and lathered with the hand or brush, using plenty of hot water, for two and one-half to three minutes. The advantage of using a brush instead of the hand for this lies in the ability of the brush to hold a considerable supply of hot water which does not cool off quickly. If latherless cream is to be used it should be *applied on top of the soap* and rubbed into it with the hand, or a little petrolatum (*Vaseline*) may be added to stiffen the lather and protect the skin. The razor should be wet with hot water and both the razor and face kept constantly wet throughout the shaving. The most generally satisfactory angle at which to hold the blade to the face is one of around thirty degrees. Places which are the hardest to shave, such as the upper lip and central portion of the chin, may be left to the last so as to give the hairs a longer time in which to soften. For men whose hairs are white or gray, as much as five minutes should be allowed for soaking the beard with hot water.

After shaving, an antiseptic and talcum powder were found to increase the comfort. A fifty percent solution of ethyl alcohol, a seventy percent solution of ethyl alcohol, and a solution containing fifty percent ethyl alcohol and four percent salicylic acid were each found satisfactory as an after shaving lotion. [CR ventures to question the advisability of using the third formula, containing salicylic acid, which like carbolic acid is best left out of all cosmetic preparations intended for frequent or regular use.] To control bleeding from accidental

nicks or cuts, bismuth subgallate, a powder, was recommended. For the man whose face is unusually sensitive, it will perhaps help to reduce the irritation to use cold water to work up the lather after the face has been thoroughly washed with hot water (which, of course, will necessitate a longer time for lathering the beard) or to use a menthol shaving soap or cream. [There is doubt, too, of the wisdom of any regular day-by-day use of menthol.]

. . .

Contrasting with the careful observations of the group of scientists which we have reported are the fantastic claims made by the manufacturers for their own particular products. *Listerine* Shaving Cream, it is averred, "takes the strength out of the toughest beard in a few seconds"—though the scientific investigators, as contrasted with the ad-agency, found at least three minutes were needed with any kind of soap. Likewise *Williams* "Twin-Action" Shaving Cream, it is said, "instantly soaks and softens the 'starch' out of the most stubborn whiskers." *Ingram's* is "the smoothest, coolest, shaving cream that ever blessed the cheeks of men ... and the reason is Ingram's secret formula"—but no reason is given why the soap should be different, other than the existence of a secret formula. One or the other of *Mennen's* two shaving creams "will make you sing 'Hallelujah.' " (It really ought to be advertised in church papers, as an aid to the male choir leaders and singing teachers.) *Lifebuoy* Shaving Cream is "52% 'moister' than ordinary lathers"; it was smelly, perhaps, but seemed no moister. In the words of one of the trade magazine writers already quoted, "if he were to try to keep up to the attributes which spring from the fertile brains of advertising agencies, about all that would be necessary for him [the consumer] to do would be to apply the shaving cream or soap to the face, and the whiskers would disappear as gently as a midsummer breeze, leaving his skin soft and smooth as a baby's."

A good shaving soap should be free from irritating properties, and produce a copious heavy lather which holds water. These requirements differ slightly, therefore, from those for a good toilet soap. Requirements for a good shaving cream are those of a good shaving soap plus a soft creamy consistency, making it easy to spread and dissolve the product into lather. For the sake of enjoying the particular consistency of a cream, the purchaser must pay for a large proportion of water and usually for about ten percent added glycerin which is no boon to one's skin, and may be the opposite. These two ingredients afford at best only a minor advantage.

In selecting one of the common types of shaving aids—shaving soap (in tablet, cake, bowl, stick, or powder form), lathering shaving cream, or latherless shaving cream—it should be remembered that ordinary tablet or cake shaving soap is wholly satisfactory and decidedly the most economical to use (at 5c per cake). With either the tablet or stick soap, the soap may be moistened and rubbed directly over the beard and lathered with the fingers or preferably with a brush. The metal top of a common type of mayonnaise jar snugly fits

the common size soap tablet and makes a holder for it so that the tablet may be used just as conveniently as the more expensive shaving stick; or a jar or a cup may serve as a satisfactory holder. A stiff latherless shaving cream has the advantage that it helps to protect the skin from irritation, but it tends, on the other hand, to clog the razor and appears to reduce by a considerable factor the lasting qualities of the edge. Non-lathering cream, for best results, is used on top of a soapy lather and only after the beard has been softened by soap and water. In conclusion, it may be said, as to various newer types of shaving soaps and near-soaps, that lathering creams and latherless creams are hardly as satisfactory to use and are far more expensive than shaving soaps.

In CR's test, over thirty samples of shaving creams and shaving soaps were subjected to tests similar in character to those commonly given to toilet soaps. Besides the usual tests, coconut oil content was determined, for this ingredient when present in large amounts, tends to cause a degree of irritation on the skins of many persons. All brands tested were made in part from coconut oil because of the maker's wish to take advantage of the characteristics of quick lathering and lathering in hard water which this oil provides, but some contained a much larger proportion than others. Coconut oil content, even of soaps and shaving creams rated A, was relatively high (higher than CR considers desirable) and fell into the range of approximately 15 to 20 percent. Coconut oil soap, besides being more or less irritating, provides a coarse-grained lather, which is somewhat undesirable, and quick lathering is no real advantage in view of the fact that correct preparation of the face requires several minutes anyway (for the hair to soak up water).

Tests were made for speed of lathering, amount of lather produced, durability of lather, and retention of water in the lather. Since no standard methods were available for making these tests, suitable test methods were devised by CR. In the test for amount of lather, an Erlenmeyer flask was used and the lather was produced by stirring a standard weight of the soap in a measured amount of water with a common soda fountain mixer; observations were made on the behavior of these suds. With few exceptions, the differences in lather-producing-performance found between brands were judged to be insignificant from the practical standpoint of the shaver.

In general, it is more economical to buy the larger sizes. Exceptions were found, however, to this general rule and can be noted in the listings. Listings within A, B, C groups are in order of price per pound of dried weight, which serves the consumer as a rough, but reliable, practical measure of the relative economy in use of the various brands. It should be noted that "dried weight" is not the same as "dry soap," which, in the case of shaving soaps and creams, was not determined. Dried weight, which is the weight of the product after it has been thoroughly dried in an oven at 105°C., may include certain non-volatile substances other than soap, often found in shaving soaps and creams. The

difference between the weight of dry soap and the "dried weight" will in general be greater for shaving creams than for shaving soaps and may likely be between 10 and 20 percent of the total weight of the cream. On account of the fact that the soaps in general contain less non-volatile material which is not soap than do the creams, prices per pound of dried weight indicate a smaller difference between the relative costs of soaps and creams, large as this is, than would probably be the case in practical use. All ratings are cr 37.

SHAVING SOAPS, INCLUDING TABLETS, BOWLS, STICKS, POWDERS

A. Recommended

- Williams Mug Shaving Soap* (The J. B. Williams Co., Glastonbury, Conn.) 5c. Price per lb of dried weight: 50c.
- Williams Barber Bar* (The J. B. Williams Co.) 60c per lb. Price per lb of dried weight: 65c.
- Williams Shaving Stick Reload* (The J. B. Williams Co.) Small size, 10c; large size, 23c. Price per lb of dried weight: small size, \$1.75; large size, \$2.10.

B. Intermediate

- Wards Shave Tablet*, Cat. No. 53—4248 (Distrib. Montgomery Ward & Co.) 3 for 12c plus postage. Price per lb of dried weight: 36c (postage not included). Matter insoluble in water, somewhat high (undesirable).
- Colgate Cup* (Colgate-Palmolive-Peet Co., Chicago) 5c. Price per lb of dried weight: 49c. Coconut oil content, high. Suds comparatively not well maintained.
- Palmolive Shave Tablet* (Colgate-Palmolive-Peet Co.) 5c. Price per lb of dried weight: 50c. Coconut oil content, high.
- Colgate Barber Shave* (Colgate-Palmolive-Peet Co.) 60c per lb. Price per lb of dried weight: 66c. Coconut oil content, high. Suds comparatively not well maintained.
- Williams Luxury Shaving Tablet* (The J. B. Williams Co.) 25c. Price per lb of dried weight: \$1.55. Coconut oil content, somewhat high.
- Williams Quick & Easy Shaving Powder* (The J. B. Williams Co.) 23c. Price per lb of dried weight: \$1.80. Coconut oil content, somewhat high. Suds not comparatively well maintained.
- Colgate Rapid Shave Powder* (Colgate-Palmolive-Peet Co.) 23c (labeled 25c). Price per lb of dried weight: \$1.90. Coconut oil content, high.
- Colgate Shave Stick* (Colgate-Palmolive-Peet Co.) Small size, 10c; medium size, 23c. Price per lb of dried weight: small size, \$1.90; large size, \$2.20. Coconut oil content, high.
- Yardley's Shaving Bowl* (Yardley & Co., Ltd., 620 Fifth Ave., N.Y.C.) \$1. Price per lb of dried weight: \$5.80. Coconut oil content, somewhat high.

C. Not Recommended

- Supreme Shaving Soap*, Cat. No. 8—4915 (Distrib. Sears, Roebuck & Co.) 8 for 27c. Price per lb of dried weight: 33c. Coconut oil content, somewhat high. Alkalinity (irritating property), high. Relatively (to soaps and creams tested) slow lathering properties; this, however, is not judged an important disadvantage.

SHAVING CREAMS

A. Recommended

- Latherall Bay Rum Shaving Cream* (Distrib. F. W. Woolworth Co.) Small size, 10c; large size, 20c. Price per lb of dried weight: small size, \$1.60; large size, \$1.45.
- Colgate Rapid Shave Cream* (Colgate-Palmolive-Peet Co., Chicago) Small size, 10c; medium size, 23c (labeled 25c); large size, 40c. Price per lb of dried weight: small size, \$2.50; medium size, \$2.40; large size, \$1.95.
- Wards Vitaminized Shaving Cream*, Cat. No. 53—3905 (Distrib. Montgomery Ward & Co.) 19c plus postage, sold in combination with tube of tooth paste, whence price of soap is not closely determined. Price per lb of dried weight: at 19c per tube would be \$1.95. Concerning value of vitamins in a shaving cream, see comments in discussion preceding listings.
- Squibb Shaving Cream* (E. R. Squibbs & Sons, N.Y.C.) 24c (labeled 25c). Price per lb of dried weight: \$2.75.
- Yardley's Shaving Cream*, No. 2056 (Yardley & Co., Ltd., 620 Fifth Ave., N.Y.C.) 50c. Price per lb of dried weight: \$7.20.

B. Intermediate

- Lavender* (Craig-Martin, Chicago; distrib. F. W. Woolworth Co.) Small size, 10c; large size, 20c. Price per lb of dried weight: small size, \$1.25; large size, \$1.30. Relatively (to soaps and creams tested) slow lathering properties. Coconut oil content, high.
- Dermaseptic Mentholated* (American Specialty Co., Memphis, Tenn.) 20c. Price per lb of dried weight: \$1.40. Coconut oil content, high.
- Velvo Bay Rum Shaving Cream*, Cat. No. 8—4902 (Distrib. Sears, Roebuck & Co.) 17c plus postage. Price per lb of dried weight: \$1.90 (postage not included). Coconut oil content, high.
- Palmolive Shave Cream* (Colgate-Palmolive-Peet Co.) Small size, 10c; medium size, 23c (labeled 25c); large size, 40c. Price per lb of dried weight: small size, \$2.05; medium size, \$2.30; large size, \$2.00. Note that large and small sizes are the most economical. Coconut oil content, high.
- Mennen Lather Shave, Menthol Iced* (The Mennen Co., Newark, N.J.) Small size, 29c (labeled 35c); large size, 39c (labeled 50c). Price per lb of dried weight: small size, \$3.10; large size, \$2.20. Coconut oil content, somewhat high.
- Lifebuoy Shaving Cream* (Lever Bros. Co., Cambridge, Mass.) Small size, 10c; large size, 23c. Price per lb of dried weight: small size, \$2.75; large size, \$2.25. Coconut oil content, high. "Contains the same protective ingredients as Lifebuoy Health Soap" (see "Toilet Soaps" in the November 1937 *Bulletin*). Phenol or cresol ingredient may be irritating to many skins.
- Mennen Lather Shave, Plain* (The Mennen Co.) Small size, 29c (labeled 35c); large size 39c (labeled 50c). Price per lb of dried weight: small size, \$3.25; large size, \$2.30. Coconut oil content, somewhat high.
- Listerine Shaving Cream* (Lambert Pharmacal Co., St. Louis) Small size, 10c; large size, 23c. Price per lb of dried weight: small size, \$2.60; large size, \$2.40. Coconut oil content, high.
- Stagg Bay Rum Shaving Cream* (C. O. Langlois, 501 Fifth Ave., N.Y.C.; distrib. Rexall Drug Stores) 25c. Price per lb of dried weight: \$2.55. Coconut oil content, high.

B. Intermediate (contd.)

Williams Luxury Shaving Cream (The J. B. Williams Co.)

Small size, 10c; large size, 23c (labeled 35c); "double size," 48c (labeled 50c). Price per lb of dried weight: small size, \$3; large size, \$2.80; "double size," \$2.90. Large size only slightly more economical than either of the other two. Content of matter insoluble in water, high (undesirable).

Ingram's Concentrated Shaving Cream (Bristol-Myers Co., N.Y.C.) 33c (labeled 35c), tube. Price per lb of dried weight: \$3.15. Advertised to have an astringent effect, but character of the latter is not stated. Gives a cool sensation presumably due to menthol. (According to one authority regular use of an astringent "is fraught with some danger." Be that as it may, CR con-

B. Intermediate (contd.)

siders that consumers will be on the safe side if they do not make regular use of a shaving soap or other soap with an astringent effect.)

Ingram's Shaving Cream (Bristol-Myers Co.) 33c (labeled 35c), jar. Price per lb of dried weight: \$3.30. Coconut oil content, somewhat high. See comments re astringent properties under *Ingram's Concentrated Shaving Cream*.

McKesson's Shaving Cream (McKesson & Robbins, Inc., Bridgeport, Conn.) 25c. Price per lb of dried weight: \$3.15. Coconut oil content, exceptionally high.

Rexall Shaving Cream (United Drug Co., Boston) 25c. Price per lb of dried weight: \$3.20. Coconut oil content, high.

WHAT IS IRIUM?

THE STORY of the enterprising druggist who sold an ounce of table salt under the scientific name of sodium chloride or *sal communis* and charged fifty cents for it is not a mere tale from an old book. The same procedure is being followed today—not only by the professional druggist but by certain organized industries, which apparently obtain much enjoyment, and great wealth, out of the practice of fooling the consumer. The opposite of selling a common substance under a scientific name is also resorted to for purposes of misleading the buyer; chemical compounds (which under their real names can often be bought at a low price) are sold under coined names designed to impress or confuse the public. After all, the average man's vocabulary does not include nearly as many names of chemical compounds as it does of baseball players and tennis stars. Carbon tetrachloride is relatively cheap. *Carbena*, the name under which consumers have bought it, is relatively high.

To sell a rose under any other name may not be a form of cheating unless the new name misleads one into believing something quite different from the truth. Yet such trade practices always hold the possibility of a genteel kind of swindle, with the public paying the carrying charges in the form of impressive advertising, luxurious offices, and various vice-presidents in charge of sales, public relations, and finance. The free use of trade-marked or trade-registered names for simple products offered to the consumer is fraught with the danger of fraud and is, in many cases, effectively sponsored and protected by governmental agencies. Here is but another instance of the need for better laws for the protection of the ultimate consumer, laws standing for the dissemination of truth—no more and no less—concerning products offered for sale.

Not so long ago the Pepsodent Company, through the medium of the radio and press, began using the simple and euphonious term "irium" in connection with their tooth paste and tooth powder. The buying public may fall for it. The word "irium" may indeed have a magnetic effect

in drawing tooth paste buyers to the Pepsodent counter, and in stepping up sales. But to the men of science, the word "irium" created suspicion that something was not precisely as it ought to be. To a chemist, the ending "ium" signifies an element, and more particularly a metallic element. In some of the earlier radio reports, statements are said to have been made to the effect that irium was a "new element" in *Pepsodent* tooth paste. Still the chemical profession was not apprised of the discovery of any new element. They knew of an iridium, but irium—that was a new one to the men who know their elements, compounds, and mixtures.

"What is irium?"—that was the query sent out to reputable chemists in the Philadelphia Section of the American Chemical Society, a question asked perhaps by almost as many tongues as, singing in college glee clubs, have asked, "Who is Sylvia?" The answers to this question were interesting both in the number of replies received and in the nature of the answers given. As it turned out, the majority of the chemists queried were far better informed on the goings-on of Amos and Andy than on tooth pastes, tooth powders, and mouthwashes. Nevertheless, it was found that most of them held tooth paste advertising in utter disregard and dismissed any statement concerning irium as rank ballyhoo. A few, as it happened, especially those interested in the laundry, textile, and cleaning industries, knew what irium really was—knew it under its true name. Irium is the name given to the compound, sodiumlaurylsulphate. It is the sodium salt of the sulphuric acid ester of lauryl alcohol, known to chemists long before it was made unique by the Pepsodent people's inventing of an alias for it. This sodium salt is one of many substances that, when present in common soap, will produce abundant lather.

In response to an inquiry, the Pepsodent Company replied that "irium is our trade-mark or name for the new detergent now incorporated in Pepsodent tooth paste and Pepsodent tooth powder and is covered by U. S. Patent No. 2,054,742. Actually, irium is sodium lauryl sulphate

($C_{12}H_{25}SO Na$), but you can easily see how impractical it would be to use this long chemical term in our advertising." Coining a new name for a well-known technical substance was not a new idea. Years before, the Ipana tooth paste makers advertised their product as containing the substance "Ziradol." The Pepsodent Company thus had an excellent precedent in the tooth paste field. The use of a chemically altered lauryl alcohol also was nothing new. Gardinol, a name given to a sulphated lauryl alcohol, has been in use for many years as a detergent in the textile industry because of its fine lathering ability and because it makes soluble calcium salts out of otherwise insoluble calcium compounds—seemingly a somewhat dubious thing to do for teeth, which are principally calcium phosphate.

In addition to the detergent or cleaning agent foolishly and uninformingly called "irium," Pepsodent tooth paste and tooth powder contain a polishing agent. The polishing agent is sodium monometaphosphate, $Na(PO_3)_4$. In answering a letter from a chemist who asked for technical information about the characteristics of "irium," Pepsodent's makers said this concerning their irium-rich product: "The combination of the detergent [irium] and the polishing agent [sodium monometaphosphate] has been subjected to hundreds of clinical tests in various types of gum conditions over periods of many months. At no time has any irritating effect been observed." You see, they mention gums—not teeth. The Pepsodent Company said further, "Many freshly extracted teeth have been kept in constant contact in aqueous suspension with sodium monometaphosphate for twelve months." In this instance, you see, one ingredient of the tooth paste is claimed to be safe for the teeth but no mention is made of the important one, irium. Why should the company have failed to state in their description of the chemical and physical properties of their product whether or not the action of the ingredient "irium" on the teeth had been under clinical examination, and if it had, what the findings were?

The Pepsodent Company should know by this time that the Council on Dental Therapeutics of the American Dental Association has found that both Pepsodent tooth paste and Pepsodent tooth powder dissolves calcium from human tooth enamel which has been ground up for the purposes of the test. In a projected report, the American Dental Association planned to advise the dental profession that these two Pepsodent products cannot be regarded as harmless. After all, a

Not Confidential—Consumers' Research, Inc.

Change to PEPSODENT TOOTH PASTE containing IRIUM

Quickly loosens and removes dull, dingy film... Wins flashing new luster on teeth

● Now a thrilling dental discovery ends Scrub-Hard disappointment—makes your daily brushing *amazingly effective!*

IRIUM—the remarkable new ingredient contained only in Pepsodent—*steps up* the cleaning power of tooth paste. Because it

provides a smooth, gentle cleansing action that speedily loosens dingy film and floats it away like *magic*. You clean your teeth quicker, easier. Your brushing gets *results*—in teeth that sparkle with lovely natural brilliance.

If you would have beautiful teeth, remember that proper brushing is only *half* the formula. The other half is Pepsodent Tooth Paste containing IRIUM. This modern dentifrice responds *instantly* to your brush—cleans and polishes enamel surfaces in a way that *shows up* old-fashioned methods.

Your teeth feel clean and stay bright much longer after using Pepsodent Tooth Paste containing IRIUM. Try it! You'll no longer be a Disappointed Scrub-Hard.

All Pepsodent now on sale contains IRIUM.

Pepsodent alone among
Tooth Pastes contains IRIUM

BECAUSE OF IRIUM..

Pepsodent requires NO SOAP..
contains NO GRIT..NO PUMICE

— Safe!

BECAUSE OF IRIUM..

Pepsodent gently floats film away
— instead of scraping it off.

— Thorough!

BECAUSE OF IRIUM..

Pepsodent Tooth Paste leaves your
mouth feeling clean and wholesome.

— Refreshing!

Change to
PEPSODENT
IT ALONE CONTAINS IRIUM

An Example of "Irium" Advertising

proprietary mixture capable of dissolving calcium compounds from teeth largely composed of calcium, whether you call the product irium or bunkum, seems to be in no sense a product wisely to be used as a dentifrice. Such a product may be suitable for laboratory experimentation, but not for daily use in the mouth.

Chemists could have told the Pepsodent people about this a long time ago. And possibly they did. Compounds such as Gardinol, the sulphated lauryl alcohol, were employed as water softeners because they made soluble salts with the calcium present in hard waters. These detergent and solvent compounds were used as a penetrant in wool dyeing. They lather well at the expense of the calcium compounds in the water with which they come in contact. (The same principle is employed in the newly heralded *Drene* for hair shampoo.) Possibly this property of irium may have had some consideration in Pepsodent's failure to define "float" as used in advertising in the phrase "floats film away" when asked to do so by the inquirer already referred to. The power of dissolving teeth, even a little bit, is not a desirable property in a substance offered to clean them—irium or no irium, sink or float.

RUSSELL C. ERB

"ELIXIR" POISONINGS

DRUG MANUFACTURERS AGAIN EXPERIMENT WITH THE PUBLIC HEALTH

READERS of the better newspapers were shocked to learn, on October 18 in a newspaper and radio release by the editor of the *Journal* of the American Medical Association of numerous fatal poisonings by a semisecret preparation, "Elixir of Sulfanilamide." To one who has not known of the many deaths due to the use of cinchophen, and many cases of grave eye disease and occasional deaths from the reducing agent, alpha-dinitrophenol, or has not heard of the horrible injuries caused by the fashionable depilatory *Koremlu*, it would hardly seem conceivable that such a catastrophe would be possible in a country so noted for its activity in chemical and pharmacological research. For weeks the newspapers reported more and more deaths until the total has at the present time reached over ninety.

"Elixir of Sulfanilamide" consists essentially of about 10 percent of the drug, sulfanilamide, dissolved in a 72 percent water solution of diethylene glycol. Sulfanilamide, which is one of the most valuable recent discoveries for the treatment of streptococcic and gonococcic infections, is known to possess toxic properties and is certainly a drug that is not to be used indiscriminately. Organized medicine in this case seems to have done its duty by its public, for on October 2, about a week before the first poisoning was reported, the *Journal* of the American Medical Association printed an editorial entitled "Sulfanilamide—a warning." This publication pointed out that in a previous issue of the *Journal*, nine of the eleven contributions on sulfanilamide reported toxic manifestations. The editorial further stated, as had been indicated time after time previously, that the drug should not be administered in association with other drugs. Even Epsom salt was known to increase the dangers in its use.

Elixirs are a common class of pharmaceutical preparations, usually consisting of the medicinal substance dissolved in an inert solvent—alcohol and water—with added sweetening and flavoring materials. Because sulfanilamide is insoluble or unstable in the usual pharmaceutical solvents, modern industrial chemical solvents were brought into the pharmaceutical field, with drastic results. One group of the "newer solvents" now very popular in industry, is the glycols. These substances have the convenient property of being miscible with water and at the same time being solvents for many substances which are themselves insoluble, or nearly so, in water. One such solvent, widely known, is ethylene glycol, which functions as a radiator antifreeze.

The glycols resemble glycerin both chemically and physically. Like glycerin, they possess hygroscopic (i.e., moisture-holding) properties and as such have been used in baked goods to maintain a soft, fresh appearance. The same glycol which in the sulfanilamide elixir caused poisonings, is used in *Philip Morris* cigarettes as a moisture-retaining agent and is, of course, the basis of their advertising

of not using glycerin, the substance common to other cigarettes; such advertising, incidentally, has been notable for the extent to which it has appeared in medical journals. Possibly this may have had some relationship to the haste with which the American Medical Association in discussing the elixir poisonings covered the cigaret situation by saying: "There is no evidence that its [diethylene glycol's] ordinary use in industry or as an ingredient in the manufacture of cigarettes is harmful."

That glycols have been tried experimentally for pharmaceutical purposes is a fact that would have been readily available to any researcher who was competent enough and careful enough to examine the pharmaceutical literature of the subject. In any careful search, he would have read that the use of these substances "for pharmaceutical purposes has been almost completely ignored. The reason for this is due to the probable high toxicity of these compounds." Likewise a search of the chemical and medical literature would have shown many references to the toxicity of glycols and several to diethylene glycol.

Most reputable pharmaceutical manufacturers whose products are sold chiefly on physicians' prescriptions maintain expensive research departments, and an extensive library of toxicological and pharmacological journals, and employ competent chemists and pharmacologists. Indeed, many of the most important medical discoveries have originated in these well-equipped and ably-staffed laboratories. It would be a matter of routine in a company of the highest standards before placing a new product on the market, to make a careful survey of the literature to ascertain if its toxicity had been reported. If any doubt remained, there would follow an extensive series of pharmacological experiments on animals, covering a considerable period of time, possibly several generations of experimental animals, to detect long-time effects that might not appear in the short life of one group of rats or guinea pigs. At the end of such experiments if there were no evidence of toxicity, the product should then be tried clinically before receiving widespread distribution.

On the other side of the picture, there are those manufacturers—and they are, unfortunately, not few in number—whose attention is more directed to the profit that is to be made by quick sales of a new product, beating their competitors, if possible, to a market waiting for a new or widely publicized drug. "It can happen here" that diethylene glycol or any other gravely poisonous substance should be given wide distribution by an active and aggressive sales force of a pharmaceutical manufacturer who, to many physicians in small towns and cities, may be almost the only contact with the world of research and scientific development, as has been tragically illustrated. The kind of research which such physicians sometimes are unknowingly availing themselves of is illustrated in the case of this "elixir" by the following brief quotation from a

letter from the consulting chemist for the manufacturer which was quoted in *Drug Topics*: "We gave 40 times the human dose of the elixir to pigs and they liked it. Then we shot it into them and they still lived with no harm done." Yet when the same "elixir" was given to animals by the laboratory of the American Medical Association and by private physicians, the animals died. It has been definitely proved that death occurred as a result of the diethylene glycol and not the sulfanilamide. And yet the chemist claims that the solvent was not to blame. *Drug Topics* points out that "during prohibition many deaths had occurred among persons who drank automobile anti-freeze solutions containing glycol (ethylene glycol, very closely related to diethylene glycol) in the erroneous belief that they were made of denatured alcohol." It is further reported that two deaths recently occurred in Canada allegedly caused by diethylene glycol in a fruit sauce.

But it appears that the manufacturer was not entirely unaware of the fact that diethylene glycol was toxic, as the chemist quoted a recent pharmacological report indicating that diethylene glycol was about half as toxic to rats as ethylene glycol. Maybe only half as toxic, but one-half as toxic is still pretty toxic, as the results of the manufacturer's experiment with human safety proved only too well. Moreover, and this is a fact that pharmacological experimenters are forever forgetting, human beings are physiologically and pharmacologically in many ways very different from rats or any other test animal. (This was brought out, one would think, with dramatic and unforgettable force in the case of alpha-dinitrophenol which was used some years ago at the instance of a great university clinic in a preparation for cure of obesity. Guinea pigs experimented on did not show the toxic symptoms that were later shown in many tragic cases in human beings.) That some such result might have been conceivable is indicated in the *same paragraph* in the *journal* which the chemist referred to. In that paragraph it is said that "our results show that diethylene glycol is about *twice as toxic* to rabbits as ethylene glycol and propylene glycol." Consider the drug manufacturer's recommended dosage: "Begin with 2-3 teaspoonfuls in water every four hours. Decrease in twenty-four to forty-eight hours to 1 or 2 teaspoonfuls and *continue at this dose until recovery*." [Italics mine—G. W. F.] The last part of the directions is indeed dreadful irony. Such a dosage would indicate about 15 teaspoonfuls daily, initially, or 2 ounces. If the patient drank half a gallon of water daily, he would be receiving the equivalent of about 3 percent of diethylene glycol; in the article quoted by the chemist, this amount of diethylene glycol in drinking water was *fatal to all of the rats* consuming it! It seems unbelievable that anyone would manufacture for human consumption a preparation of sulfanilamide, known to be potentially toxic, particularly with other drugs, mixed with a solvent known to be toxic, without himself testing the toxicity of the solvent and of the solvent in combination with the potentially toxic sulfanilamide. The minimum lethal dose quoted in the

article was large, but it was the amount deadly to rats in a single dose. The solvent has been shown to have cumulative action so that a number of smaller doses would become fatal.

In the year 1937, in one of the countries most progressive both scientifically and in matters of public health of the whole world, our so-called pure food and drug laws permit such an occurrence! Indeed, the only legal authority which the Food and Drug Administration had for seizures was due to a technicality—the preparation was considered "misbranded" because it was labeled "Elixir" and yet did not conform to the usual conception of an elixir. As in the notorious incident of the deadly radium water nostrum which is known to have brought about the death of two persons and quite likely contributed to the early demise of many others, the Food and Drug Administration was not able to deal with this new product on the significant fact of its danger to the persons who would take it. It had to be proceeded against because it was technically mislabeled, under a law which the New Deal has been content to put up with for five years while the laws and regulations to protect the coal industry, labor, the welfare of reindeer and potato farmers have been rushed into and out of the New Deal scene like stage props in the acts of a three-ring circus. Consider the magnitude of the task before the Food and Drug Administration. With a handful of inspectors—less than a hundred throughout the country—it had to trace about seven hundred shipments of the preparation to all parts of the United States. The Department deserves a great deal of credit for successfully tracing every shipment, in some cases even into the home. It meant untiring effort on the part of the inspectors. In some cases its men stood on street corners and asked passers-by if they knew the whereabouts of anyone of such and such a name appearing on a prescription blank calling for the elixir. It seems rather odd when the government has so much money to spend on "lettered" projects that have exhausted the alphabet and caused confusion with duplications, that no one in authority has ever seriously sought an appropriation adequate for the protection of consumers against unscrupulous, ignorant producers of foods and drugs. Fully in accord with the plot of a skit in a Broadway review some years ago, the New Deal has seemed to demand of its favorite projects that they be as useless as possible to the public in general and as harmless as possible to any vested interest, even an interest permitting the manufacture of dangerous drug products by people too uninformed or too poorly equipped to read the available technical literature.

The president of the S. E. Massengill Co., of Bristol, Tenn., (himself a physician) with branches in New York, Kansas City, and San Francisco, manufacturer of the "elixir," is quoted by the *Journal* of the American Medical Association as having written: "We regret exceedingly the unfortunate occurrence, but as *we violated no law* and made no error in manufacture, I do not think we should be blamed by the unlooked for action of the product." [Italics mine—G. W. F.] *Drug Topics*

quotes a letter from him, in part, "I do not feel that there was any responsibility on our part." It is a sad state of affairs when a manufacturer of medicinals sold on physicians' prescriptions claims no responsibility and no blame for "unlooked for action." The predetermination and proper dealing with unlooked-for actions is the purpose of pharmacological research and the bounden duty morally, if not in law, of every manufacturer presuming to make medicines.

If the manufacturer is not to blame, who is? A part of the blame must be shouldered by the politicians and others who defeated some of the best of the earlier food and drug law proposals, especially that recommended by Consumers' Research, in the fall of 1933, which, if well enforced, would have made such an occurrence impossible, or nearly so. For years there has been agitation for reform of the food and drugs laws to prevent a manufacturer from selling a poison as a medicine. To practice medicine or pharmacy, one must, in most states, graduate from a recognized college and then pass state board examinations. If it is essential for a pharmacist to be properly trained to fill physicians' prescriptions, it should be more important for a manufacturer who devises and fills his own "prescriptions" in the form of so-called "patent medicines" and ethical proprietaries to be properly trained, much better trained, indeed, than the pharmacist who runs the corner drugstore and is more or less dependent for his information upon higher authorities in medicine and pharmacology. In most states, anyone can manufacture and sell

substances for medicinal use—good, bad, or indifferent. He may use in it almost any sort of poison—arsenic, mercurials, vitamin D, iodides. He may sell it to whomever is uninformed enough to believe patent medicine advertising. That the people who buy—and, worse still, very many of the physicians who prescribe these preparations—are at the mercy of the manufacturer is too well indicated in the present case. Had the manufacturer employed more detail men and had he been able to turn out the product in larger volume, the death list could readily have been thousands. When one considers the vast amount of these preparations sold annually, it is a wonder that there haven't been more such occurrences; medical men and druggists will make mistakes enough. The kind of mistakes that manufacturers make and have made frequently in the past, never should be tolerated because their mistakes may easily injure hundreds or thousands, and in case of death or injury, there is little hope of recovering even the amount of medical and hospital bills involved. Let us hope that at last the public will demand of Congress that such a law be passed that these more than ninety innocent victims of what all too often passes for research in the manufacture of medicines shall not have died in vain. We predict a sharp decline in the commercial prosperity of the patent medicine industry and of the makers of all unknown and untried medical substances, until the memory of these occurrences shall have passed from the public mind.

GEORGE W. FIERO

NEW YELLOW FOG LIGHTS INEFFECTIVE

ALTHOUGH you doubtless would refrain from giving a confidence-man ten dollars for "a valuable fur scarf just smuggled in by a ship's officer from Germany," you may easily part with ten dollars without a murmur and with little pain if a manufacturer claims in the best advertising technique: "Powerful fog lamp—special formula amber-colored glass lens—scientifically designed to cut through heavy fog." Yet the real value of the goods received by you would not be much different in either case. If you love gadgets, the joy of mere possession of one more shining and luxurious accessory may perhaps be sufficient reward for the ten dollars expended, but the advantage claimed for the colored light is just so much buncombe in so far as helping you to drive more safely in fog is concerned. As CR has previously warned, it is better to save your money than to invest in colored headlights.

The opinion which so many motorists have that there is some aid to clearness of vision from amber-colored light can be explained, in the judgment of a recent writer in *Automotive Industries*, as due to false impressions arising from the lower intensity of the colored light; from the lower sensitivity of the eye for yellow when the yellow is seen off to one side of the direction of vision, i.e., peripherally; from bias created by advertising or by theorizing; or from a simple liking for the amber color. The basic element in the manufacturer's ability to make money out of the marvelous new amber lights that appear through clouds of fog, lies in the human willingness to believe that something different is

something better.

The most recent authoritative announcement on the subject of colored fog lights is that given in Technical Paper No. 20, *The Use of Coloured Light for Motor Car Headlights*, Department of Scientific and Industrial Research, London. (30c postpaid, British Library of Information, 270 Madison Ave., N.Y.C.)

The report of this department of the English government gives the answers, as determined by the chief scientific investigations into the subject, to the following four questions: (1) "Can the driver of a car at night see better if he uses headlights emitting coloured light?" (2) "Is the disturbance of a driver's vision by the headlights of other cars reduced if they use coloured lights?" (3) "Can a driver see objects at a greater distance in mist or fog if he uses headlights emitting coloured light?" (4) "Can the occurrence of coloured objects or backgrounds be turned to advantage by using headlights emitting coloured light?"

The answers to questions three and four are flatly No! The answers to questions one and two are negative with but slight qualifications, which are of no practical significance to the average consumer. Whatever advantage is to be gained, or seems possible to postulate, would be so small as to be of negligible importance. The report concludes: "None of the claims made in favour of using a coloured, and in particular a yellow headlight beam, rather than a white beam of no greater power, has been substantiated."

GASOLINE

THE SETTING up by state governments of official grades for gasoline, such as A, B, and C, is in the wind. The proposal, however, when it has been made, has met with marked and vigorous opposition by the big oil companies and it is not likely that such a law will go into effect in the near future, or that if it does, its administration will be rendered adequate by the assignment of an appropriation to provide for the proper testing and promulgation of the findings. The need for such grading, administered by competent technicians, is well illustrated by the findings of a committee in New York State whose investigations disclosed that eighty samples of gasoline examined out of one hundred and fifty were substantially alike in quality, but showed the usual differences in price. The oil companies are reported to have presented a typically irrelevant argument, saying: "Public belief that all gasolines were alike would stifle the competitive spirit among companies which is responsible for the improvement in quality through expensive research." Actually, of course, the competitive spirit among refining companies finds its major manifestations in a rivalry of advertising claims, ingenious use of beautiful, aristocratically dressed women in the advertising copy, and vague hints of extraordinary qualities of a given make of gasoline with respect to speed, pick-up, lowered cost per mile, and the like, always without tangible proof or anything even remotely equivalent to valid evidence.

The American Petroleum Institute has estimated that if the carburetors of all motor vehicles now in use were correctly adjusted, the saving in the money now spent for gasoline would amount to \$250,000,000 yearly. Why is it almost impossible to obtain a new car with the carburetor adjusted correctly or even to have a correct adjustment made by a garage mechanic? The answer should be obvious. Both the salesman and the garage mechanic know that the consumer, lacking knowledge of the way a properly adjusted carburetor and engine should act, expects the car to demonstrate "snappy" action and to show full pulling performance and acceleration practically at once after the engine has started. Only a carburetor set richer than it should be for best economy and best engine performance *after the engine is warmed up*, will function in this way, and for their little defect of education about engine performance, consumers are footing the bill to the extent of one-quarter of a billion dollars yearly and gasoline refiners sell more gasoline. Worse still, perhaps, the streets of our cities and our trunk highways are heavily polluted with partially burned gasoline vapors and large excess quantities of carbon monoxide. Most carburetors can be adjusted to increase mileage 10 percent without affecting performance. However, if the mixture is made very lean, the motor's behavior on acceleration will be somewhat impaired; until it warms up, firing may be weak and uneven.

* * *

For the benefit of those subscribers who are not

familiar with CR's *Special Bulletin 26—A Consumers' Study of Automobile Gasolines and Oils* (25 cents), and in order that the ratings which follow and the comments made in connection with them may be intelligently understood, the following brief explanations of the characteristics upon which the ratings are based are given.

Antiknock Quality. The lower limit of antiknock quality to which the majority of cars can now be adjusted is to a gasoline having an octane number of 60. In the tests reported in this *Bulletin*, the premium gasolines were found to have octane numbers from 77.5 to 82, regular gasolines from 68 to 74, and third-grade from 58.5 to 70. Thus in the following ratings, any gasoline which is rated below "fair" in antiknock quality is considered of a grade below what should ordinarily be used, at least in recent models of cars. In old cars and trucks, it is usually possible to utilize a third-grade gasoline even of the poorer grades, the use of which in the most modern cars might be associated with some difficulties, particularly "pinging."

Acceleration. For a given temperature, the most volatile gasoline, that is, the one which will evaporate most rapidly, will have the best effect in permitting rapid acceleration of the engine.

Ease of Starting and Tendency to Vapor Lock. Both of these properties depend on the volatility of the gasoline in such a manner that gasoline which starts readily also tends most readily to produce vapor lock. However, tendency to vapor lock is not a common difficulty in the winter, unless possibly in the warmest parts of the United States. Thus, although this characteristic has been mentioned in a few cases, it has been given little weight in determining the ratings. The tendency of gasoline to vapor lock depends upon the volatility of the gas and also to a great extent upon the design and layout of the fuel system. It is caused by the clogging or blocking of the fuel line due to bubbles of gasoline vapor which are formed during the flow of the liquid to the carburetor.

Sulphur Content. Sulphur compounds in gasoline are undesirable if present in amounts greater than 0.1 percent. During the winter, gasoline having a relatively high sulphur content will be likely to form sulphurous and sulphuric acids which are corrosive and can cause considerable damage to the engine. This is especially true of modern cars which, for the sake of permitting the use of methanol as an anti-freeze, have motors and cooling systems which run much too cool for best economy and best life of the motor. Sixteen of the samples out of sixty-eight in CR's present test exceeded the limit of 0.1 percent sulphur content. One sample contained as much as three and one-half times the permissible amount.

It will be noted that one brand of gasoline (*Polly Gas*) made by a polymerization process has been included in this test. This gasoline has been advertised to have "special anti-knock, power, speed and mileage properties." However, while gasolines made by this process may have higher antiknock

quality than gasolines produced by other processes, gasoline produced by polymerization tends more to form gum and does not in fact appreciably improve speed, mileage, or power.

Irrespective of propaganda issued by the Ethyl Gasoline Corporation, the hazard to one's self and others of using a gasoline containing the poisonous tetraethyl lead should not be minimized by any user of gasoline. Unfortunately, the public has been so misled by shrewd commercial propaganda that it is an extremely difficult task to convince it that leaded gasoline is extremely undesirable. The Ethyl Gasoline Corporation has seen to maintaining its very large monopoly profits by such expedients as presenting engineering schools with knock rating machines, which while demonstrating the improved antiknock values of gasolines plus ethyl, include no equipment or apparatus whatever for observing and analyzing the very real hazards to engine and user involved in the utilization of gasoline containing tetraethyl lead and ethylene dibromide. Additional devices used by the makers of ethyl gasoline to build up public respect for, and belief in, their product include interesting newspaper articles and lectures before college and university classes in engineering, chemistry, and other related subjects. There are also free lectures before general audiences unaware of the concealed price they pay in the form of bias in favor of ethyl gas resulting from listening to speakers having a commercial propaganda purpose. Thus the engineering graduate who is unaware of the fact that free lectures cost somebody money—in this case, the general public—is almost certain to leave college a potential booster for leaded gasoline, of which he will very likely have seen a specious and misleading demonstration, omitting the element of toxicity, in his college course. Subscribers not aware of the very serious hazard involved will find it of interest, and perhaps of importance to their health, and certainly to the health of the people who may have occasion to work on their motor, to refer to CR's *General Bulletins* of January 1934 and April 1936 (25 cents each).

Tetraethyl lead is added to the gasoline for the purpose of increasing its antiknock value, in other words, to minimize the tendency of the engine to knock under heavy load. The belief that a gasoline which produces a slight knock, or ping, in one's engine is not a suitable fuel for one's car is an erroneous one and one that is shrewdly capitalized directly, or by implication, in much ethyl-gasoline advertising. When an engine is knocking, actually the maximum horsepower is being produced. This knock occurs when the motor is slowed down on a hard pull, with the throttle almost fully open. Only when such knocking is considerable, and under severe and exceptional circumstances, will there be any danger of harm to the engine. It is to be admitted, however, that the modern engine is more sensitive to damage by excessive knocking than the old-fashioned engines were. This is not implicit in the design of the modern engine, but in certain skimping of its construction which has accompanied attempts to get a great deal of power, mostly un-

needed by the average user, at a minimal cost for material and manufacture.

It is advisable to select the type of fuel best suited for your car, have the proper spark adjustment made, and either continue to use that fuel exclusively (unless it is found that for some reason its quality has been lowered), or use another suitable fuel of approximately the same octane number. Actually, there is little difference in the resultant power obtained by different fuels with different antiknock qualities, *providing the proper spark adjustment is made in each case*, and the difference in performance is only a small fraction of the difference in cost between the better non-leaded fuels and the premium leaded fuels. (It is true that the adjustment of the spark is much more difficult under present conditions, where a simple control of spark advance which was formerly located on the steering wheel has been taken off and hidden under the hood where only a serviceman knows how to deal with it.) In the light of the above considerations, it will be best, with rare and relatively unimportant exceptions, to use unleaded gasoline.

Because of the large number of requests from subscribers living in regions where it is impossible to obtain good non-leaded gasolines, CR has included in these tests leaded regular and premium gasolines; in the case of leaded gasoline, the lead content was determined in order that those compelled for any reason to use leaded gasoline may be in a position to choose one with the lowest available lead content.

It is important to note that CR cannot, and will not, rate any product *A* whose use presents an unnecessary hazard to the consumer. Thus, no leaded gasoline has received higher than a *B* rating irrespective of its other qualities or characteristics which appear to justify an *A* rating.

Numerous complaints have been received that in the selection of brands CR has consistently favored the East. This is not in fact the case for most articles. Readers have sometimes drawn erroneous conclusions from their being unable to purchase certain recommended brands in Western cities; the failure was, as often as not, that of the manufacturer who claimed national distribution and advertised nationally but did not actually distribute his goods in the Far West. In this test there will be no complaint from West Coast subscribers—at least we venture to hope so—for the majority of brands were purchased in California, Utah, Oregon, and Nevada, and if there is anything corresponding to widespread distribution of brands of Western gasolines, everyone living in the coastal and western Rocky Mountain regions should be provided for. For the convenience of subscribers, the *A* and *B* Eastern listings from the June 1937 test have been brought forward. These Eastern gasolines were summer, and not winter grades, but it is reasonable to assume that with these particular brands large relative changes will not have occurred in their quality, as between the summer and winter grades. The chief difference between summer and winter gasoline of any good brand will be in the volatility. Should a subscriber purchase one of the recommended East-

tern gasolines and find it somewhat unsatisfactory in respect to the factor of ease of starting in unusually cold weather, he will need only to change to another recommended brand stated to be better than average in ease of starting, such as *Gulf Traffic*, *Tidex*, or *Sunoco*. The regions where all were purchased are indicated in parentheses immediately after the brand names:

(PC) Sample bought on the Pacific Coast.

(FW) Sample bought in the Far West.

(E) Sample bought in the East.

The following ratings have been computed on the basis of the major gasoline performance characteristics as judged by experts specially qualified on the rating of gasolines from laboratory and field test data. In respect to the factor of gum formation, all the samples were found to be satisfactory. (Gum deposits may result in sticking of the valves, causing poor engine operation and loss of power.) In order to save space, and in consideration of the relatively large number of samples listed, names of the distributors in most cases have been omitted as non-essential. Where a characteristic was found to be of about average value, mention of that characteristic has also been omitted for a similar reason; accordingly, there is no weight to be given, in reading the listings, to the fact that in some cases comments appear longer and more detailed than others. All ratings are on a scale of 1 to 37.

THIRD-GRADE GASOLINES (NON-LEADED)

A. Recommended

Cities Service (E). Antiknock quality, satisfactory. Better than average in accelerating properties.

Gulf Traffic (E). Antiknock quality, fully satisfactory. Better than average in ease of starting, and in accelerating properties. Tendency to vapor lock, somewhat greater than average; to crankcase dilution, less than average.

Hancock (PC). Antiknock quality, fully satisfactory. Somewhat below average in accelerating properties.

Petrol Anti Knock (PC). Antiknock quality, superior and, therefore, more than ordinarily serviceable in cars requiring high-octane fuel. Somewhat below average in accelerating properties.

Richfield Flash (PC). Antiknock quality, fair. Somewhat below average in ease of starting.

Texaco Indian (PC). Antiknock quality, satisfactory. Somewhat below average in ease of starting.

Tidex (E). Antiknock quality, satisfactory. Better than average in ease of starting, and in accelerating properties. Tendency to vapor lock, somewhat greater than average; to crankcase dilution, less than average.

Union White Magic (PC). Antiknock quality, fair.

B. Intermediate

Caminol Beacon (PC). Antiknock quality, low.

Conoco Demand (FW). Antiknock quality, low. Somewhat better than average in ease of starting. Tendency to crankcase dilution, greater than average.

General Metro (PC). Antiknock quality, low.

Gilmore Blue Green (PC). Antiknock quality, low.

Rio Grande G Gas (PC). Antiknock quality, fair. Somewhat below average in ease of starting.

B. Intermediate (contd.)

Shell Green Streak (FW). Antiknock quality, low. Better than average in ease of starting. Tendency to crankcase dilution, greater than average.

Shell Green Streak (PC). Antiknock quality, low. Below average in ease of starting.

Sinclair Green (E). Antiknock quality, fair. Better than average in ease of starting, and in accelerating properties. Tendency to vapor lock, greater than average; to crankcase dilution, less than average.

Sinclair U.S. Motor Specifications (FW). Antiknock quality, fair. Somewhat below average in acceleration. Tendency to crankcase dilution, greater than average.

Standard Flight (FW). Antiknock quality, fair. Tendency to crankcase dilution, greater than average.

Standard Flight (PC). Antiknock quality, low. Somewhat below average in ease of starting.

Stanolind (FW) (Utah Refining Co.) Antiknock quality, fair. Somewhat below average in acceleration. Tendency to crankcase dilution, greater than average.

Sunland (PC). Antiknock quality, fair. Somewhat below average in ease of starting and acceleration.

Texaco Indian (FW). Antiknock quality, fair. Somewhat below average in acceleration. Tendency to crankcase dilution, greater than average.

C. Not Recommended

Associated White Gold (PC). Antiknock quality, low. Much below average in ease of starting, below average in accelerating properties. Tendency to crankcase dilution, greater than average. Sulphur content, high.

Signal Peerless (PC). Antiknock quality, fair. Much below average in ease of starting.

Wilshire Economy (PC). Antiknock quality, fully satisfactory. Somewhat below average in ease of starting. Sulphur content, high.

REGULAR GASOLINES (NON-LEADED)

A. Recommended

Blue Sunoco (E). Antiknock quality, superior and, therefore, more than ordinarily serviceable in cars requiring high-octane fuel. Better than average in ease of starting, and in accelerating properties. Tendency to vapor lock, somewhat greater than average; to crankcase dilution, less than average.

Navy (PC). Antiknock quality, superior and, therefore, more than ordinarily serviceable in cars requiring high-octane fuel. Tendency to crankcase dilution, greater than average, but this factor not considered of great importance.

Norwalk Red (PC). Antiknock quality, superior and, therefore, more than ordinarily serviceable in cars requiring high-octane fuel. Tendency to crankcase dilution, greater than average.

Norwalk White (PC). Antiknock quality, superior and, therefore, more than ordinarily serviceable in cars requiring high-octane fuel. Tendency to crankcase dilution, greater than average.

Richfield Hi-Octane (PC). Antiknock quality, superior and, therefore, more than ordinarily serviceable in cars requiring high-octane fuel. Somewhat below average in ease of starting.

Signal (PC). Antiknock quality, superior and, therefore, more than ordinarily serviceable in cars requiring high-octane fuel. Somewhat below average in ease of starting.

B. Intermediate

American (E). Antiknock quality, superior and, therefore, more than ordinarily serviceable in cars requiring high-octane fuel. Better than average in ease of starting, and in accelerating properties. Tendency to vapor lock, greater than average.

Mohawk 75 (PC). Antiknock quality, fully satisfactory. Below average in accelerating properties. Tendency to crankcase dilution, greater than average.

C. Not Recommended

El Tejon (PC). Antiknock quality, fully satisfactory. Better than average in ease of starting; below average in accelerating properties. Tendency to crankcase dilution, greater than average. Sulphur content, high.

Mohawk Golden Arrow (PC). Antiknock quality, fully satisfactory. Below average in ease of starting, and in accelerating properties. Tendency to crankcase dilution, greater than average. Sulphur content, high.

Polly Gas (PC). Antiknock quality, superior and, therefore, in this respect, would be serviceable in cars requiring high-octane fuel. Better than average in accelerating properties. Sulphur content, high.

Shell Super (FW). Antiknock quality, superior and, therefore, in this respect, would be serviceable in cars requiring high-octane fuel. Sulphur content, high.

Super Shell (PC). Antiknock quality, superior and, therefore, in this respect, serviceable in cars requiring high-octane fuel. Better than average in ease of starting. Sulphur content, high.

Wilshire Super Octane (PC). Antiknock quality, fully satisfactory. Better than average in accelerating properties. Sulphur content, high.

REGULAR GASOLINES (LEADED)**B. Intermediate**

Associated Flying A (PC). Lead content, somewhat above average. Better than average in accelerating properties. Tendency to crankcase dilution, less than average.

Caminol Security (PC). Lead content, above average. Antiknock quality, better than average.

General Mobile (PC). Lead content, about average. Somewhat below average in ease of starting. Tendency to crankcase dilution, less than average.

General Mobile Gas (FW). Lead content, about average. Somewhat below average in ease of starting.

Gilmore Red Lion (PC). Lead content, about average. Somewhat below average in ease of starting. Tendency to crankcase dilution, less than average.

Hancock 5 Point (PC). Lead content, above average. Antiknock quality, better than average.

Sunland HO (PC). Lead content, about average. Somewhat below average in accelerating properties.

Texaco Fire Chief (PC). Lead content, about average. Tendency to crankcase dilution, less than average.

Union 76 (FW). Lead content, about average. Better than average in accelerating properties.

Union 76 (PC). Lead content, about average. Better than average in ease of starting, and in accelerating properties.

C. Not Recommended

Mobile Gas (PC) (N. W. Oil Co.) Lead content, below average. Better than average in ease of starting, and in accelerating properties. Tendency to vapor lock,

C. Not Recommended (contd.)

greater than average; to crankcase dilution, less than average. Sulphur content, high.

Mohawk Super (PC). Lead content, about average. Below average in accelerating properties. Tendency to crankcase dilution, greater than average.

Richfield Hi-Octane (FW). Lead content, about average. Below average in accelerating properties. Sulphur content, high.

Standard (FW). Lead content, below average. Sulphur content, high.

Standard (PC). Lead content, below average. Better than average in ease of starting, and in accelerating properties. Tendency to crankcase dilution, less than average. Sulphur content, high.

Standard Unsurpassed (PC). Lead content, below average. Below average in ease of starting.

Sunset Marine (PC). Lead content, about average. Better than average in ease of starting. Tendency to crankcase dilution, greater than average. Sulphur content, high.

Texaco Fire Chief (PC). Lead content, about average. Antiknock quality, better than average. Sulphur content, high.

The above gasolines would have been rated *B. Intermediate* had they not contained lead.

...

Petrol Ping Proof (PC). Lead content, above average. Below average in ease of starting, and in accelerating properties. Tendency to crankcase dilution, greater than average.

Rio Grande Cracked (PC). Lead content, about average. Sulphur content, high.

Texaco Fire Chief (FW). Lead content, about average. Sulphur content, high.

PREMIUM GASOLINES (LEADED)

CR has pointed out on more than one occasion that consumers waste a great deal of money in the purchase of premium-priced gasolines when regular-priced or even so-called third-grade (third-structure) gasolines would suffice.

The statement by a car salesman that a car should be run on premium fuel should be taken as equivalent to an admission of faulty engine design, if it is to be taken seriously at all. Don't let anyone tell you that though premium fuel costs more it gives additional mileage and so comes out to be as economical as the cheaper fuel—or in some other way provides some merit, or combination of merits, sufficient to compensate for the extra cost. Both by gasoline refiners and by automobile manufacturers, leaded gasoline is being made quite unwarrantedly to seem more and more necessary in automobile operation. Actually, considering the other sources of lead in the atmosphere and in the food supply, this additional source of lead is rendered continually more and more undesirable and more and more a hazard to the health of large populations, especially city dwellers.

The antiknock qualities of all the gasolines of the high-priced, or premium, leaded type were superior, as was to be expected because of their relatively high tetraethyl lead content, which permits easy

and inexpensive (to the refiner) control of antiknock properties.

B. Intermediate

Associated (PC).

General (PC). Somewhat better than average in ease of starting.

Gilmore (PC). Somewhat better than average in ease of starting.

Hancock (PC). Lead content, above average. Slightly better than average in ease of starting.

Richfield (PC). Lead content, below average. Somewhat better than average in ease of starting.

Rio Grande (PC). Lead content, one of lowest in group tested. Somewhat below average in ease of starting.

Standard (PC). Lead content, one of the lowest in group tested. Somewhat below average in ease of starting.

Texaco (PC). Lead content, above average. Somewhat

B. Intermediate (contd.)

below average in ease of starting.

Union (PC). Lead content, above average. Best of group tested in ease of starting.

Union Ethyl (PC). Lead content, above average.

C. Not Recommended

Caminol (PC). Lead content, highest of group tested. Somewhat below average in ease of starting. Tendency to crankcase dilution, somewhat greater than average.

Petrol (PC). Lead content, above average. Somewhat below average in relative accelerating properties. Tendency to crankcase dilution, greater than average.

Shell (PC). Below average in ease of starting.

Signal (PC). Lead content, one of lowest of premium gasolines tested. Below average in ease of starting.

PLATE AND FILM-PACK CAMERAS

THIS TYPE of camera is actually the most efficient instrument that the amateur can buy for really serious photographic work. Being adaptable to plates, cut films, and film packs, this type of camera makes available a wide variety of photographic emulsions of various speeds and color response, and other characteristics important to the serious amateur. (Roll-film cameras, however costly in lens, shutter, and other equipment, always have fundamental limitations for the person who wishes to go far beyond the "snapshotting" stage of the photographic art.) A rising and sliding front which permits the lens to be moved to new positions in the same plane not opposite the middle point of the plate or film, is often helpful to obtain correct composition for a picture and especially to ensure correct perspective in architectural work. Many will find occasional use for a long bellows, provided on the best cameras of this type, which permits copying a picture, drawing, photograph, or foreign coin or other object, full size, or even somewhat enlarged. The long bellows is also helpful in permitting the use of certain special supplementary lenses giving enlarged images of distant objects. When attached to a simply constructed attachment, this type of camera can be used as an efficient enlarger or projection lantern.

The principal disadvantages of the plate and film-pack type of hand camera are its somewhat greater bulk and weight than the common roll-film camera. Because of the wide range of large, heavy, and costly lenses available for this type of camera when used for advanced photographic work, to provide large aperture and correspondingly high speed, these cameras call for a rigid mounting and support for the lens; a very different type and quality of camera front construction than required in cheaper instruments.

Though the subject is highly controversial, the view seems to be gaining ground that the advantages of the reflex or graflex type of camera have been somewhat overestimated in the past, the main dis-

advantages being their great bulk and weight and lack of mechanically controlled slow shutter speeds. There was a time when ownership of a reflex-type instrument represented the highest aristocracy among users of cameras, but there has been a noteworthy relative decrease in the extent to which such cameras are now in common use for the purposes for which they are presumed to be especially suited. They do have their special fields of use, but they are much less important for general amateur picture-taking purposes than hitherto commonly believed.

The major point to look for in choosing a folding camera is the mechanical stability and the rigidity of the mechanism and especially the firmness and assured parallelism of the plane of the lens with respect to the plane of the plate or film. If opportunity is afforded to do so, this parallelism should be checked on some test object of such character that deviation from accurate focus over part of the field can be easily noted. Another thing to check in buying a high-priced hand camera is the details of construction and support of the bellows and its physical condition, as well as the same characteristics of the plate and film holders. In purchasing cameras of especially compact design, be sure there is clearance between the back lens mount and the film surface when camera is closed and dark slide removed.

The majority of plate and film-pack cameras are essentially much alike. The price depends mostly on such factors as nicety of finish and general care in manufacture, adjustments, and inspection, and above all, the selection of the lens which is to go with the camera. The prices quoted for cameras listed (with the exception of the *Speed Graphic*) include a film-pack adapter, ground-glass focusing screen, and three plate or film holders. The choice of size appears to lie between $2\frac{1}{4} \times 3\frac{3}{4}$ inches (6 x 9 cm, approximately) and $3\frac{1}{4} \times 4\frac{1}{4}$ inches (8 x 10.5 cm, approximately), the larger size being more popular. As was the case with the "High-Grade

Roll-Film Cameras," reported on in the December *Bulletin*, CR has not attempted to cover all the makes available, but has confined its investigations to well-known cameras of reputable manufacturers which gave promise of meriting favorable recommendation. This should not, of course, be taken to imply that any well-known camera not listed is unworthy of an A rating. It is quite possible that a number of first-rate instruments may not be included in the listings which follow.

A. Recommended

Voigtlander Avus (Distrib. Burke & James, Inc., 223 W. Madison St., Chicago) \$44.50 with *Skopar* f:4.5 lens. Shutter, *Compur*, with speeds of 1 to 1/200 second, time, and bulb. Picture size, 9 x 12 cm (3¼ x 4¼ in.). Double extension bellows. This model has been discontinued. Some, however, are still available at attractive prices from various stores. 1

Voigtlander Tourist (Distrib. Central Camera Co., 230 S. Wabash Ave., Chicago) \$49.50 for size 6.5 x 9 cm (2½ x 3½ in.); \$55 for size 9 x 12 cm (3¼ x 4¼ in.). Both sizes equipped with *Heliar* f:4.5 lens. Shutter, *Compur*, with speeds of 1 to 1/200 second, time, and bulb. Double extension bellows. This model now discontinued, but see comment under *Voigtlander Avus*. 1

Voigtlander Vag (Distrib. Burke & James, Inc.) \$19.50, formerly \$24, with *Voigtlar* f:6.3 lens. Shutter, *Embezet*, with speeds of 1/25 to 1/100 second, time, and bulb. Single extension bellows. Picture size, 9 x 12 cm. At its reduced price, and in spite of the lack of slow shutter speeds under 1/25 second, this is an excellent buy for the amateur. For the more advanced amateur, however, the limited range of shutter speeds would involve some disadvantage. This model now discontinued, but see comment under *Voigtlander Avus*. 1

Kawee (Distrib. Burleigh Brooks, 127 W. 42 St., N.Y.C.) \$62.50 for size 6½ x 9 cm; \$70 for size 9 x 12 cm. Both sizes equipped with *Zeiss Tessar* f:4.5 lens. Shutter, *Compur*. Double extension bellows. These cameras have been made extremely compact without the loss of rigidity which usually accompanies such attempts at compactness. The shape is such that they fit easily into the pocket in comparison with most cameras of corresponding picture size. 2

Maximar (Carl Zeiss, Inc., 485 Fifth Ave., N.Y.C.) \$61.50 for Model A, 6½ x 9 cm; \$71.50 for Model B, 9 x 12 cm. Both sizes equipped with f:4.5 *Zeiss Tessar* lens. Shutter, *Compur*, with speeds of 1 to 1/400 second, time, and bulb in Model A; 1 to 1/200 second, time, and bulb in Model B. 2

Weston Precision De Luxe (Distrib. Burke & James, Inc.) \$66 for size 6½ x 9 cm; \$74.50 for size 9 x 12 cm. Both sizes equipped with *Zeiss Anastigmat* f:4.5 lens. Shutter *Compur*, with speeds of 1 to 1/400 second, time, and bulb in 6½ x 9 cm size; 1 to 1/200 second, time, and bulb in 9 x 12 cm size. Built-in self-timer. These cameras are also available with other lenses but the f:4.5 *Zeiss Anastigmat* is to be preferred. 2

Speed Graphic (Folmer Graflex Co., Rochester, N.Y.) The following prices include one cut film holder and *Graphic* or *Graflex* back, but without lens: \$80 for 3¼ x 4¼ in.; \$80 for 4 x 5 in.; \$96 for 5 x 7 in. Equipped with *Graflex* focal plane shutter but also available with *Compur* shutter; the combination has some advantages.

A. Recommended (contd.)

Had removable lens mount, which would facilitate substitution if for any reason a different lens than originally supplied is required. Prices complete with *Compur* shutter will range as follows, depending upon choice of lens: \$123 to \$177.50 for 3¼ x 4¼ in.; \$123 to \$201.50 for 4 x 5 in.; \$173.50 for 5 x 7 in. with *Kodak Anastigmat* f:4.5 lens; other lenses at correspondingly higher prices. This camera, being versatile, sturdy, compact, and handy, is the one most favored by newspaper photographers. Cameras of this type when equipped with the *Graphic* back have a built-in ground-glass focusing screen. Those with the *Graflex* back require a focusing panel, available at extra cost. 3

* * *

The three following cameras are of exceptionally high quality. They have certain advantages over the other cameras listed but they are recommended only for those amateurs who require and can effectively use the merits they possess, and who can afford the high prices charged for them.

Ideal (Carl Zeiss, Inc.) \$95 for Model A, 2¼ x 3¼ in.; \$115 for Model B, 3½ x 4¼ in. Both sizes equipped with *Zeiss Tessar* f:4.5 lens. Shutter, *Compur*, with speeds of 1 to 1/250 second, time, and bulb in Model A; 1 to 1/200 second, time, and bulb in Model B. Double extension bellows. Model B also had a vertical swing back. AA3

Linhof Precision (Distrib. Burleigh Brooks) Prices range from \$110 to \$300 depending upon size of camera and lens required. Available in various sizes from 4½ x 6 cm (vest pocket) to 5 x 7 in. Had almost every adjustment that could be desired. An excellent instrument throughout. AA3

Plaubel Makina, No. IIS (Distrib. Photo Utilities, Inc., 10 W. 33 St., N.Y.C.) \$280 complete with *Anticomar* f:2.9 lens. Shutter, *Compur*, with speeds of 1 to 1/200 second, time, and bulb. 2 supplementary lenses, 2 filters and case. Automatic focusing built-in range finder. Picture size, 6½ x 9 cm or 2¼ x 3¼ in. Differed from the older Model II in that lenses could readily be interchanged. Some of Model II are still available and may appeal to those who are in a position to limit their work to one lens and desire their camera as compact as possible. Plaubel cameras have been noted for nicety of finish and quality of fitting and workmanship. AA3

B. Intermediate

The following two cameras, made for Eastman Kodak Co. in Germany, are not first quality instruments and will suffer by comparison with the best and more expensive German makes in work calling for hard, steady use. They do, it is believed, represent a good deal in the way of lens, shutter, and availability of adjustments and of supplementary lenses, when their price is considered.

Recomar "18" (Eastman Kodak Co., Rochester, N.Y.) \$54 with *Kodak Anastigmat* f:4.5 lens. Shutter, *Compur*, with speeds of 1 to 1/250 second, time, and bulb. Built-in self-timer, a device for permitting the photographer to get into his picture. Double extension bellows. Picture size, 2¼ x 3¼ in. 2

Recomar "33" (Eastman Kodak Co.) \$63. Similar to *Recomar "18"* except for size of picture, 3¼ x 4¼ in., and shutter speeds, 1 to 1/200 second. 2

IS THE AUTOMOBILE OVERDRIVE ECONOMICAL?

IT IS SLOWLY dawning on the minds of the automobile manufacturers that the consumer expects a car to be economical to operate, and that today many more buyers are asking, "What will it cost to operate this car?" A few years ago, the automobile manufacturer assumed that the consumer could not possibly be interested in the number of miles per gallon which his car achieved and questions directed toward finding out gasoline mileage were frequently greeted with a degree of scorn, as though no reasonable consumer could be interested in such a picayune matter. Nowadays, however, automobile manufacturers have sensed a rising interest of the consumer in getting the most for his money and they at least attempt to give some indication of an answer to these questions by means of glowing advertising claims for unusual gasoline and oil economy as a result of much improved engine design, carburetion, or the addition of some additional mechanical unit. Often these are available as options at an extra charge. Most of these claims for additional economy and the like are couched in general terms and, as a practical matter, the consumer may safely ignore them and seek his own sources of reliable information. It is true that there has been some increase in operating economy during the last several years, particularly if one considers the greater increased engine capacity, power, and accelerating performance which manufacturers have been providing recently. It must be admitted that most of the increases in economy are, from the consumer's standpoint, paper gains, because they have not resulted in lower cost in dollars and cents for gasoline per year, but have, for the most part, provided more luxurious engine performance, ease of maintaining high speeds for long distances, etc.

Among the various mechanical units which have recently been introduced on the American market, the overdrive, or cruising, gear is conspicuous. Simply stated, this device consists of an extra set of gears through which each cylinder explosion is made to account for a forward motion of the car about 40 percent greater than when the car is operated in ordinary high, or third, gear. By the use of these units, the engine is permitted to run approximately 30 percent slower, while the road speed of the car remains the same. As a result, the higher pressures in the engine cylinders permit somewhat more efficient burning of the fuel mixture in the cylinders. At higher road speeds a marked reduction of oil consumption results from the slower engine speeds. There is no doubt that when these special gear arrangements are used at the "right" speed for steady, long-distance driving, they will reduce gasoline consumption from three to five miles per gallon; at the higher touring speeds they will reduce oil consumption, by as much as 50 percent. Such statements are enticing and make excellent advertising copy, but from the consumer's standpoint, there always remains the real question, "What will that saving amount to in dollars and cents for a year's driving, and will the saving be sufficient to

justify the higher first cost; is there a real, net saving or only an apparent one?"

Such overdrive, or cruising, units will be offered the 1938 buyer in three different styles or types: the automatic transmission, the semi-automatic overdrive, and the non-automatic two-speed axle. The first costs approximately \$100 extra, the second about \$40, and the last about \$50 when installed at the factory. All of them furnish what is often called a cruising gear, but some of them offer additional features which will be explained briefly.

The semi-automatic overdrive offers two advantages. At any road speed above a certain critical speed, usually about forty miles per hour, the "extra-high," or cruising gear, can be engaged by simply lifting the foot momentarily off of the accelerator pedal. As long as the road speed stays above the critical, or change-over, speed the cruising gear will remain engaged, but when road speed is reduced, releasing the accelerator pedal will cause the unit to shift back into ordinary high, or third, speed. The unit can also be locked out by means of a hand lever, or selector, so that it does not come into operation automatically when the accelerator pedal is used. The semi-overdrive type of unit is usually combined with freewheeling which operates at all times except when the cruising gear is in operation or when the unit is locked out by means of the hand lever.

The automatic transmission, as introduced this year on certain General Motors' cars, consists of a four-speed unit which automatically selects the proper gear according to engine load and road speed. The fourth speed is similar in effect to the cruising gear, which has already been described, in that it acts to reduce engine speed considerably. The automatic shifting will be welcomed by those who are troubled by the operation of gearshifting, although it is difficult to understand how anyone can be troubled by shifting the gears of synchronized transmissions. If the driver suddenly wants all power available for a steep hill or for maximum acceleration, depressing the accelerator to the floor board will cause the unit to shift into third, or the accelerating, gear. When the demand for extra power is over and the accelerator pedal is released, the unit will automatically shift back into fourth speed in which the engine runs slowest and the power available is less than in third gear. With this arrangement, the gearshift lever is entirely eliminated. The unit operates smoothly, does simplify driving for some people, and has the advantage of making maximum practicable use of the fourth, or cruising, gear, whereas under the other arrangement this gear may not be used sufficiently to gain all possible advantages in engine operating economy which it might afford. However, the automatic transmission unit is new, is untried in the hands of the general public, is quite complicated, is difficult to adjust properly, and is very expensive. It is well to remember that one can afford to do a very great deal of gearshifting by hand for the \$100 which this

unit costs as an extra.

A two-speed axle is optional at extra cost on two Ford-manufactured cars. It consists of a unit installed in the rear axle which makes two rear-axle-ratios available. One of these is the ordinary, factory-determined ratio (a little over 4 turns of the engine for each turn of the rear wheels for 1936 cars, 3.78 for 1937 cars and also for the 1938 V-8, "85" cars), while the high-ratio-gear reduces engine speed about 30 percent, by changing the rear-axle-ratio to about 3 to 1. Thus the unit gives the driver a choice of six different forward driving speeds, three in the low rear-axle-ratio and three in the high rear-axle-ratio. The unit is operated by adjusting the selector handle on the instrument board to either high or low position and depressing the clutch pedal; the shift is then made by engine vacuum. The shift can be made at any speed so long as the car is moving, and it is also possible, after learning how, to make the shift while the car is standing still. This Ford unit is very simple, easy to operate, and gives the driver a choice of six different driving gears; however, in practice, the average driver will use only four of the available speeds, and besides this, many drivers—indeed all drivers who do not have any particular mechanical sense—will not know how to use the units so as to secure the greatest efficiency and pulling power from the engine in any particular set of circumstances.

All types of cruising gears give a markedly quieter car at high road speeds. The slowing down of the engine permits speeds up to 70 and 75 miles per hour with scarcely any engine noise and vibration, virtually the only noticeable sounds being caused by the rush of the air past the car, and the tire noises. This all combines to give one the illusion of less road speed, a smoother ride, and less tiring driving. To those to whom the extra price is of no moment, the feature of added quietness alone will be regarded as a strong argument for the new arrangement. There are, however, disadvantages: one is the difficulty of repair and adjustment, which may be serious if a breakdown occurs far from an authorized service station familiar with the unit and equipped with proper instruments for its care and adjustment; the other is that the units, because of the decreased sense of engine effort which they give, tend to lure the driver into higher average road speeds—this is particularly true if freewheeling is operating—and it must be agreed that anything which brings about this result is bound to bring an increased death and injury rate in its train. Road speeds are a large factor in automobile fatalities and no amount of skill and care in driving can make up for an increase in average road speed.

A comparison of the oil and gasoline cost of two cars based on actual operating records will be of some interest in showing what savings are practicable. A owns a Ford, a 1936 sedan, equipped with a two-speed axle. He has kept careful records of driving costs, and has compared gasoline consumption and oil consumption both for driving done in "high ratio" and in conventional Ford or "low ratio." A is a driver who knows the possibilities of the extra speeds which his two-speed axle provides and uses it in such a way as to gain most of the

advantages that are possible in operating economy. Based on his experience record covering average operation during 40,000 miles of driving, let us compare the cost of gasoline for 10,000 miles of driving. (One-half of his driving was city and suburban, with speeds usually below thirty-five miles per hour; the other half was in the country, at typical open-road touring speeds of fifty to sixty miles per hour.) Assuming a gasoline price of twenty cents per gallon (gasoline at other prices can easily be substituted in the computation):

Comparison of Cars Equipped with Low-Ratio or Conventional Ford Axle Gearing, and with Two-Speed Rear Axle
WITH STANDARD OR LOW-RATIO FORD REAR AXLE

| Miles | Average Miles Per Gallon of Gasoline | Gasoline or Oil Consumption | Cost to Consumer |
|---------------|--------------------------------------|-----------------------------|------------------|
| 5000, city | 16 | 313 gal | \$62.60 |
| 5000, country | 17 | 294 gal | 58.80 |
| | | 30 qt | 9.00 |
| Total | | | \$130.40 |

WITH COLUMBIA TWO-SPEED FORD REAR AXLE

| | | | |
|-------------------------------------|----|---------|----------|
| 5000, city | 16 | 313 gal | \$62.60 |
| 5000, country | 20 | 250 gal | 50.00 |
| | | 25 qt | 7.50 |
| Total | | | \$120.10 |
| Net Saving, in 10,000 Miles \$10.30 | | | |

According to the above record, use of the high-ratio Ford gear for 5000 miles of country driving saved \$10.30 in gasoline and oil costs. If the two-speed unit costs \$50, it would take five times five thousand miles (or 25,000 miles) country driving to permit the consumer to get back in savings the price of the unit. Again on the assumption that about one-half of the driving was done in the city, the total mileage would be two times 25,000 miles (50,000 miles), which would take most owners at least two or three years. We can conclude that, if one-half of the driving is done in the country, the driver will save about \$1 for each thousand miles he drives his car, or \$2 for each thousand miles of touring (excluding city driving).

Entirely apart from the cost of repair and maintenance of one of these units (which cannot yet be predicted since insufficient experience has been had with them), you will find that it will pay to assume the extra cost of purchase of one of the units of the Ford type only if (a) at least one-half of your driving is in the country, (b) your driving speed in the country will usually be above forty miles per hour, (c) you expect to drive at least 30,000 to 40,000 miles before trading your car in on a new one, and (d) if but a small proportion of your driving is done on steep hills or mountain roads.

MEN'S SUITS

WE begin with a recent letter to a big mail-order concern:

December 7, 1937

Montgomery Ward & Company
Chicago, Illinois

Dear Sirs:

In accordance with your letter of December 1, I am returning the suit to you which was recently purchased—and by express collect. I enclose a copy of the measurements previously sent you, and I think if you had followed them a little more closely, the suit would have been a better fit. As stated in my letter of November 24, the collar of the coat is too low in the neck, and the coat is too broad across the back, and too large in the chest. It is too long in the back from neck to shoulder blades, too long-waisted, and too tight around the hips. The vest is low in the neck, and the pants are too large in the seat, hips, and waist. The length of the pants is satisfactory.

It took you a month to fill my original order for the suit, and now see what I have got. Please don't be so slow in making the alterations as you were in filling the order. I think you ought to be more prompt for the sake of the man who may be in urgent need of the suit when some accident happens to his other one.

Very truly yours,
R——W——

The garment so sorrowfully discussed in this letter was Ward's highest-priced suit. It was claimed to be the finest suit "possible to sell under \$50.00" and to afford "\$50 styling ... \$50 fabrics ... \$50 tailoring plus a perfect fit." But in supplying the suit Montgomery Ward failed to follow the careful measurements which were sent; the coat, for instance, was an inch wider across the shoulders, and the pants were larger in the waist, than ordered. Readers of CR's previous report of men's suits will recall a difficulty of the same sort with Ward's suit in the earlier test, the trousers at that time being an inch shorter than ordered. With Sears, Roebuck & Co., on the other hand, a much better fit was obtained as a result of the equally careful measurements which were sent with the order. Alterations were found necessary in the S. R. suit in the present test although none were required in the earlier test.

The consumer should note, of course, that mail-order firms are somewhat at a disadvantage in selling suits, because they cannot make a poor fit seem like a good one, as the merchant often can, with a personal touch or tug here and a flattering word there. (See illustration.)

Fit, workmanship, and quality of the materials are the three factors which the purchaser should keep in mind as determining the value of a suit. The fit should be good when one just puts the suit on in the natural way. Almost any suit can be buttoned and pulled this way or that by the salesman so as to give the semblance of a good fit to the customer gazing into the mirror. But that won't be the fit

you'll get when you put the suit on and wear it normally. Especially beware the "horse-collar" neck (spreading collar which stands out and hangs away from the neck). The collar should fit snugly and evenly. The back should hang smoothly and not wrinkle.

All the suits in CR's test were bought to fit the individuals who ordered them. It was a rather common experience of these people that the merchant who took the measurements and filled the order provided only for those alterations that were most needed. Only when the purchaser returned after having been advised by an experienced and expert men's tailor did the merchant go to work and complete all of the alterations actually required. With suits, as with most other commodities, the consumer, himself, needs to know what is good and when an article is right, or he will frequently fail to get his money's worth. CR cannot too often repeat that an enlightened consumer is a necessary encouragement to merchandising integrity and good workmanship. Nothing can take the place of critical judgment backed by a knowledge of the facts about various sorts of consumers' goods, and what may reasonably be expected of them in the way of fit finish, workmanship, and durability.

Examine the stitching and matching of seams, reinforcements, buttonholes, buttons. Rayon, and in particular cellulose acetate rayon, makes a comfortable lining and one more durable than silk.



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Pockets subject to wear by keys and coins should be made of a heavy material such as duck (seldom to be found, however, in ready-made suits although it would cost but a few cents more to make the important pockets of really lasting material). It is a good plan to ask at the time the pants are fitted that a double thickness of cloth be sewed at the extreme bottom to the surface of the cloth inside the trouser legs so that the trouser material itself will be held away from the heels of the shoes and so protected from rapid wear. This addition will not show and will greatly increase the life and help keep the good appearance of the trousers.

Watch for skimping, which may take many forms. The padding over the shoulder blades, for instance, may be left exposed, between the outer fabric and the coat lining. The better made coats have the padding protected by a double lining which serves to hold the padding securely in place.

Worsteds, both hard finished and unfinished, which are wool fabrics made of long fibers which, in manufacture, were combed out to make them lie parallel, are more durable than woolens. Woolens are a kind of wool fabric made of short fibers, uncombed, in which the fibers lie "every which way" instead of parallel. Until recently when manufacturers learned how to mix rayon fibers with wool, it was possible to count upon worsteds as being pure virgin wool. Now, however, rayon fibers are a rather frequent adulteration of the wool yarn, and in such use are very difficult to detect, and particularly to determine quantitatively. (This does not refer to use of rayon yarns—as distinguished from fibers—for diversification in weave. A limited amount of yarn used in this way, and in a proper weave structure, is thought to be unobjectionable.) Garments of worsted, or combed wool, hold their shape better than the uncombed woolens. The hard-finished worsteds having no nap, and serges having a slight nap, wear exceptionally well, but it must be kept in mind that such "flat" hard fabrics tend quickly to become shiny. The soft-finished worsted (so-called unfinished worsted) and worsted cheviot, which is known as a semi-finished worsted, have a slight nap which helps to prevent shine and gives a soft appearance like that of a woolen. But note that very soft-finished, nappy, or fleecy wool fabrics have a definite disadvantage also, in that the nap pulls and wears off at points where the wear is greatest, as at knees and elbows, and then the garment acquires an uneven or threadbare quality which may call for its being discarded long before it is really worn out. Worsteds, especially the softer ones, on account of their many desirable qualities, have become much more popular for men's suits than have woolens. The most popular of the woolens are tweeds and flannels. A label "100% wool" on a woolen fabric means little of value to the consumer, for it says nothing about the amount of shoddy which may be included, and the proportion of shoddy contained may be very high in a "pure wool" garment. For durability avoid all loosely woven, sleazy fabrics that seem to lack body, firmness, or strength.

Eleven three-piece suits, ready-made with the exception of the suits from Sears, Roebuck and A.

Not Confidential—Consumers' Research, Inc.

Nash (advertised as made to order), ranging in price from \$19.85 to \$50, and bought by individuals to fit themselves were included in the present test. They were given a critical examination for fit and workmanship by an experienced and expert tailor, and the fabrics were given customary tests for tensile strength (this was determined by the raveled-strip method), quality of wool, thread count, and weight. Wearing quality was further determined by a test of each fabric for resistance to abrasion on CR's specially designed fabric wear-test machine. The present test showed, as did the earlier one, that in men's suits it is unnecessary to pay the highest prices in order to obtain a suit having good wearing qualities and good fit and tailoring. The chief differences between the highest-priced suits and the lowest-priced ones lay in nicety of details of the tailoring. Fabrics of all the suits were worsteds and the coat linings were of rayon and vest linings of cotton unless otherwise stated in the listings. For convenience in making comparisons suits have been classified into two groups—one group for those selling at \$30 or above, and one group for those priced at less. Ratings depend not only upon the materials and workmanship in the suit but also upon fit after alterations, when needed, by the merchant; all are cr 37.

SUITS PRICED UNDER \$30

A. Recommended

The Richman Bros. Co., 1600 E. 55 St., Cleveland. Model No. 703. \$24.50 plus postage. Purchased by mail. Extra trousers \$6.50. Fabric woven of very good quality worsted, 2-ply in both warp and filling. Weight of fabric, 8.9 oz per sq yd. Tensile strength: warp 70 lb, filling 56 lb. Resistance to abrasion in CR's test, average. Fit obtained by mail order required alteration. Suit was neatly tailored.

B. Intermediate

Crawford (Crawford Clothes, Inc., New York, N.Y.) Cloth No. 8225. \$19.85. Extra trousers \$6. Lining of vest, rayon. Fabric woven of good quality worsted, 2-ply warp and single-ply filling. Silk and wool ornamental stripe yarns in warp. Weight of fabric, 8.8 oz per sq yd. Tensile strength: warp 70 lb, filling 59 lb (both values being among the highest for the eleven suits tested). Resistance to abrasion in CR's test, satisfactory. Fit was satisfactory, but suit required a second alteration. Tailoring below average.

Howard (Howard Clothes, Inc., 170 Tillary St., Brooklyn, N.Y.) Cloth No. 6115. \$22.50. Extra trousers \$6. Fabric woven of fine quality worsted, 2-ply warp and single-ply filling. Weight of fabric, 9.6 oz per sq yd. Tensile strength: warp 65 lb, filling 59 lb. Resistance to abrasion in CR's test, good. Fit was poor, even after a second alteration, and might justify a C rating. Fabric was an excellent value, especially in consideration of the low price of the suit. Tailoring below average.

SUITS PRICED AT \$30 OR OVER

A. Recommended

B. Kuppenheimer & Co., 415 S. Franklin St., Chicago. Cloth No. 8237. \$40. Fabric woven of very good

A. Recommended (contd.)

quality worsted, 2-ply warp and single-ply filling. Silk ornamental stripe yarns in warp and filling. Weight of fabric, 9.0 oz per sq yd. Tensile strength adequate: warp 63 lb, filling 54 lb. Resistance to abrasion in CR's test, good. Fit was good, but suit required a second alteration.

Fashion Park Mfg. Corp., 432 Portland Ave., Rochester, N.Y. No. 192 PM 3718. \$45. Fabric woven of very good quality worsted, 2-ply in both warp and filling. Silk ornamental stripe yarns in warp. Weight of fabric, 9.3 oz per sq yd. Tensile strength: warp 69 lb, filling 51 lb. Resistance to abrasion in CR's test, very good. Fit was good, but suit required a slight second alteration.

Sears, Roebuck & Co., Cat. No. 44-6088. \$35 postpaid, made to order. Fabric woven of fine quality worsted, 2-ply warp, single-ply filling. Silk and wool ornamental stripe yarns in warp. Weight of fabric, 9.9 oz per sq yd. Tensile strength: warp 67 lb, filling 55 lb. Resistance to abrasion in CR's test, satisfactory. Vest and pants required some alteration, but coat was a good fit without alteration.

Society Brand (Alfred Decker & Cohn, Chicago) \$45. No. 37525-0072. Fabric woven of very good quality worsted, 2-ply warp and single-ply filling. Weight of fabric, 8.5 oz per sq yd. Tensile strength: warp 69 lb, filling 59 lb. Resistance to abrasion in CR's test, satisfactory. Fit was good, but suit required slight second alteration.

Stein Bloch (Stein Bloch Tailors, Rochester, N.Y.) Cloth No. 15304. \$50. Fabric woven of good quality worsted, 2-ply warp and single-ply filling. Weight of fabric, 8.5 oz per sq yd. Tensile strength: warp 61 lb, filling 51 lb. Resistance to abrasion in CR's test, average. Fit was very good; required no alteration.

B. Intermediate

Hart Schaffner & Marx, 36 S. Franklin St., Chicago. Lot No. 57875-730. \$30. Novelty-tweed woven of low-grade woolen, alternate 2-ply and single-ply in both warp and filling. Weight of fabric, 9.8 oz per sq yd. Tensile strength: warp 43 lb, filling 34 lb (low). Resistance to abrasion in CR's test, below average. Fit was good; required only slight alteration. Judged to be worthy of rating as a satisfactory purchase only for a person requiring good appearance at the price rather than good quality.

The A. Nash Co., 1916 Elm St., Cincinnati. Cloth No. 8310. \$32.50. Fabric woven of a worsted of poor grade, 2-ply in both warp and filling. Rayon and rayon-wool ornamental stripe yarns in warp. Weight of fabric, 8.3 oz per sq yd—made of the lightest suiting material of the eleven tested. Tensile strength: warp 66 lb, filling 61. Resistance to abrasion in CR's test, poor; this low abrasion resistance was accounted for only in part by the lightness of fabric (a quality advantageous in warm weather and warmer climates). Fit was good, after alteration. Tailoring below average.

C. Not Recommended

Montgomery Ward & Co., Cat. No. 940-521. \$35 plus postage. Lining of vest, rayon. This firm took practically a month to fill the customer's order, and the suit was then found not to fit properly and to deviate excessively from measurements sent. Tensile strength low but was well balanced: warp 51 lb, filling 48 lb. Resistance to abrasion in CR's test, average.



Corrections to:

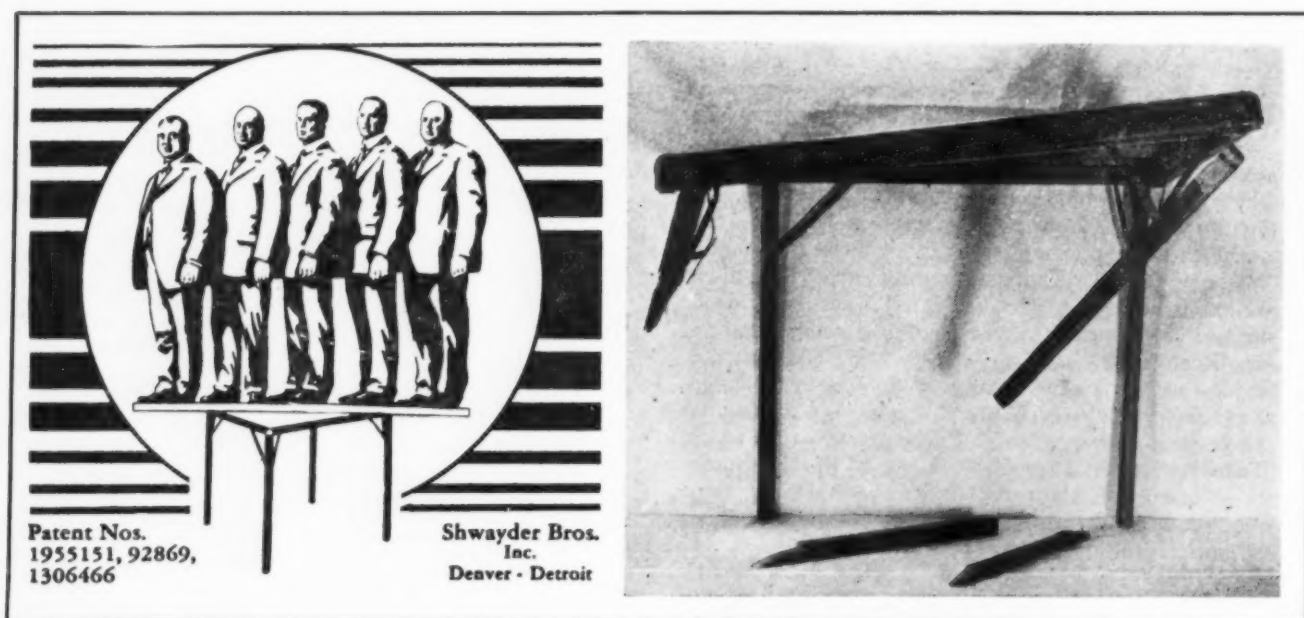
Consumers' Research Bulletin
issue of November 1937

Page 8 Radio Sets: The *Knight*, Model 170, has 7 tubes, not 8 as stated.

Page 16 Motion Picture Projectors: *Kodascope* EE. Since this listing was issued, information has become available indicating that this projector is needlessly severe in its action on motion picture film, a factor of particular importance as to film

which receives constant or frequent use, as in schools, or film issued by lending libraries. While this element of projector design may not be a vital matter for film receiving average use in the home, CR believes, on present information, that the rating of this projector should be changed to *B. Intermediate*, pending further investigation, which will be reported to subscribers as soon as definitive information is available.

CARD TABLES



THE CHIEF deficiency of many card tables was well summed up not long ago in a very amusing cartoon by Denys Wortman. In a typical one-room kitchenette apartment a girl is shown seated by a card table, a cup of coffee in front of her. Her roommate with a loaf of bread in one hand and a knife poised in the other says: "Hold on to your coffee cup, Elizabeth, I'm going to cut the bread."

Many of the cheaper makes of card tables are so "rickety" that prospective buyers can easily determine the seriousness of this characteristic defect for themselves before making a purchase. Simply have the table set up on the salesroom floor. Place the hand flat in the center of the top and jiggle the table from side to side. Unless price is the primary consideration, do not under any circumstances purchase a table that shows a marked tendency toward "rickety," which will most assuredly increase with age and usage. If you are not conversant with the degree of shakiness that is to be expected in a card table, have several tables set up—high-priced and cheap ones—and from a comparison of the way they act, obtain a knowledge of the degree of shakiness which you think tolerable in the one you select.

Here are a few pointers to help you in selecting a well-made card table:

1. Diagonal cross-pieces supporting the top make for greater strength than other types of construction.
2. Tops of plywood (3 plys of natural wood, glued) are preferable to those of cardboard and wallboard.
3. Leg joints should lock rigidly, otherwise a leg may give way suddenly with disastrous results to whatever reposes on top of the table. It is poor economy to risk costly glassware or an expensive coffee or tea service because the maker of a card

table did not trouble himself to design a secure locking device at the joints.

4. Legs and the under side of the rim of the table should be smooth and free from splinters or any sort of roughness which might catch silk stockings and other garments.

5. Top surface of tables should be free of all projections, such as corner brackets or projecting edges of the metal trim or finish, which can inflict serious damage both to the hands and cards.

6. Steel tables are usually around 50 percent heavier than those of wooden construction, and for some people this will be a disadvantage, as card tables, unless they are left set up permanently, should be as light as possible for easy handling.

In order to determine the relative merits of various card tables on the market, CR made laboratory tests of eleven different makes which are believed to be widely available. The factors in the test involved quality of material, strength and rigidity, and sturdiness of catches. Several of the tables tested had metal corner brackets on the top, and others had metal strips projecting slightly above the surface of the table, on which the fingers or cards might easily catch. A fingernail might be painfully broken or torn on one of these projections.

One of the *Samson* tables had a label which pictured five portly men, resembling United States Senators or other political magnates, standing on top of it. No claims were made, but the intimation was unmistakably clear that the table was especially strong and capable of bearing up stoutly under this great combined weight of five men. In CR's test three men of normal weight got on top of the table in the precise manner represented in the picture. Just as a fourth was taking his place, the legs gave way and the table crashed to the ground, pretty much a wreck, with two broken legs, a smashed

joint construction, and a collapsed top. A later advertisement for the *Samson De Luxe* tables which appeared in the *New York Times* of November 28, 1937 showed only one portly gentleman standing on the table. It hardly seems reasonable to suppose that a newspaper advertising department would make such an investigation, but there is a possibility that five portly men in the *Times'* advertising department tested out the table before accepting its maker's advertising and, finding the five men an exaggeration, reduced it to one, which would be more like a reasonable load to be permitted as a regular thing on any table so weakly constructed as was one of the *Samson* tables.

Ratings are cr 37 except as noted.

A. Recommended

Ferguson, No. 7037 (Ferguson Bros. Mfg. Co., Hoboken, N.J.) Purchased in a N.Y.C. store for \$3.19. Plywood top covered with imitation leather. Frame and legs, wood. Weight, 11½ lb. Rigidity of table, excellent. Indicated durability of leg catches, good. Quality of materials and workmanship, good. The lightest table tested having satisfactory rigidity. 2

Lyon Steelart F-25 (Lyon Metal Products, Inc., Aurora, Ill.) \$3.50. Plywood top covered with imitation leather. Frame and legs, metal. Weight, 15 lb. Rigidity of table, excellent; one of the best in this respect of all tables tested. Indicated durability of leg catches, good. Quality of materials and workmanship, excellent. 2

Lyon Steelart F-20 (Lyon Metal Products, Inc.) \$5.95. Plywood top covered with imitation leather. Frame and legs, metal. Weight, 15 lb. Rigidity of table, excellent. Indicated durability of leg catches, good. cr 36 3

Leg-O-Matic, Model No. 9590, Style 310 (Lorraine Metal Mfg. Co., 352 Fourth Ave., N.Y.C.) \$6.95. Plywood top covered with imitation leather. Frame and legs, wood. Weight, 18½ lb. Rigidity of table, excellent. This table employed an ingenious mechanism by which opening and closing of any one leg moved the other three into the correct position. Indicated durability of leg catches, excellent 3

B. Intermediate

Ermet De Luxe, No. 35 (Distrib. Radio Circular Co., 915 B'way, N.Y.C.) \$2.89. Plywood top, stained and varnished. Frame and legs, wood. Weight, 9 lb. Rigidity of table, only fair. Indicated durability of leg catches, excellent. Quality of materials and workmanship, fair. 2

C. Not Recommended

Card Table, Cat. No. 1—4839 (Distrib. Sears, Roebuck & Co.) \$1.49 plus postage. Cardboard top covered with imitation leather. Corners were so constructed as to offer serious possibility of catching fingernails in sweeping up cards. Frame and legs, wood. Weight, 8½ lb. Rigidity of table, fair. Indicated durability of leg catches, only fair. Quality of materials and workmanship, poor. 1

Carrom, No. 857 (Carrom Co., Ludington, Mich.) \$2. Cardboard top with imitation leather finish. Frame and legs, wood. Weight, 7 lb. Rigidity of table, poor. Indicated durability of leg catches, poor. Quality of materials and workmanship, very poor. 1

C. Not Recommended (contd.)

Champion, Cat. No. 466—26 (Distrib. Montgomery Ward & Co.) \$1.98 plus postage. Cardboard top with imitation leather finish. Corners were so constructed as to offer marked possibility of catching fingernails in sweeping up cards. Frame and legs, wood. Weight, 10½ lb. Rigidity of table, fair. Indicated durability of leg catches, fair. Quality of materials and workmanship, poor. 1

Nappanee, No. 310 (Nappanee Lumber & Mfg. Co., Nappanee, Ind.) \$2.50. Cardboard top with imitation leather finish. Corners were so constructed as to offer serious possibility of catching fingernails in sweeping up cards. Frame and legs, wood. Weight, 7 lb. Rigidity of table, only fair. Indicated durability of leg catches, poor. Quality of materials and workmanship, only fair. 1

Pick, Cat. No. E40 (Distrib. Albert Pick Co., Inc., 2159 Pershing Rd., Chicago) \$2.15 plus postage. Top so constructed that metal strips offer some possibility of catching fingernails in sweeping up cards. *Masonite* top in metal frame (*Masonite* is a synthetic sheet or board material made from wood refuse). Frame and legs, metal. Weight, 14½ lb. Rigidity of table, good. Indicated durability of leg catches, only fair. Quality of materials and workmanship, poor. 1

Samson Table, No. 746 (Shwayder Bros., Inc., Detroit) \$3.15. Cardboard top with imitation wood finish. Frame and legs, wood. Weight, 9½ lb. Rigidity of table, fair. Indicated durability of leg catches, poor. Quality of materials and workmanship, poor. Picture of 5 men standing on a board on the table is grossly misleading to prospective purchaser as to the strength of the table, as noted in discussion preceding ratings. 2

Bridgmore-Kenmore (Hampden Specialty Products, Inc., Easthampton, Mass.) \$4. *Masonite* top. Corner brackets and metal strips were so constructed as to offer possibility of catching fingernails in sweeping up cards. Frame and legs, metal. Weight, 14½ lb. Rigidity of table, good. Indicated durability of leg catches, excellent. Quality of materials and workmanship, poor. 3

CONTRIBUTORS

RUSSELL C. ERB is editor of the *Catalyst*. He has written a number of articles for *Consumers' Digest* including "Tobacco—A Habit Former" which appeared in the October issue. His new book entitled *Poisoning the Public* has recently been published by Dorrance & Co., Philadelphia.

GEORGE W. FIERO is Assistant Professor of Materia Medica, in the School of Pharmacy, of the University of Buffalo. He is a frequent contributor to *Consumers' Digest* and was an extensive contributor to *Consumers' Test Manual* (published by Consumers' Research at 50c a copy).

NEW CONSUMER TOPICS IN BRIEF

Bendix Automatic Home Laundry manufactured by Bendix Home Appliances, Inc., South Bend, Ind. Retail price, \$169.50. The aggressive advertising campaign launched by the company to promote the sale of this machine and the evident big-money behind this campaign have at least been successful in stirring up a good deal of public interest, judging by the number of requests received by CR for advice to consumers on the purchase of the *Bendix*. According to the *Advertising Age*, the vice-president in charge of sales maintains that " 'price does not mean a thing' if a company has a product that is good and sets about selling it in a simple, direct and consecutive fashion, always keeping in mind that each agent in the distribution setup is interested in obtaining the greatest profit possible ... the Bendix Company set the price for the home laundry upon production costs plus a net profit plus an *autocratic markup* of \$10, the latter to serve as an aid to cope with the problem of trade-ins." [Italics ours—CR.]

Distributors are given a very handsome discount of 50 percent plus 10 percent, making the cost to the retailer approximately \$75. At the present stage of development of this appliance, CR is not planning to carry out a test of it because: first, its retail price is plainly much too high, owing perhaps to the very costly promotional campaign and exceptionally heavy advertising expenses accompanying its introduction; second, as CR subscribers well know, those who purchase a complex device during its earlier stages of development run somewhat more than normal risks of receiving an article that may give trouble due to "bugs," very common in new developments, that are all too often left for the consumer to find. It is rather exceptional, indeed, that manufacturers do careful research and life-testing of such kind and amount that early models, even of expensive appliances, will assuredly be free from defects.

Alkosave, manufactured by Evans Products Co., 392 Broad St., Newark, N.J. Retail price, 89c. A device, as the name implies, for saving alcohol antifreeze solutions by preventing their evaporation from the radiator. The appliance consists of a "trap," with a pop-off valve set to release at four pounds per square inch; the arrangement is designed to be attached at the lower end of the radiator overflow pipe and to trap any radiator solution that will be distilled over due to temperature of the radiator, or forced into the overflow due to boiling or from sharp deceleration of the car. CR does not believe that the consumer would be wise to apply to his automobile any device which restricts the free flow of vapor out of the radiator overflow pipe. The idea of trapping the distilled liquid is good, but the principle of holding it back under a pressure is open to the objection that always can be raised against any appliance which depends for its safe functioning on the sure operation of one relief or safety valve. Anyone having in mind to use this appliance,

should note carefully that it should not in any case be used with *Prestone* or any other non-volatile antifreeze, since in such a case the liquid distilled over and caught in the trap will be water, which will then likely freeze and cause complete blocking of the outlet. Since there is no provision for detecting this condition when it occurs, the pressure in the system due to the usual expansion and generation of steam would be likely to burst the cooling system at its weakest point.

South Wind Automobile Heater, manufactured by Stewart Warner Corp., Chicago. Retail price, \$19.95 plus installation. This heater was discussed in CR's February 1937 *Bulletin*, but many subscribers who did not note the listing have written in requesting information on this heater. For the benefit of those subscribers, and new ones who are not familiar with the product, we take this occasion to discuss this type of heater briefly.

Because of the low thermal efficiency of power plants and the gasoline engine in particular, nearly 40 percent of the gasoline used to run a car is dissipated as heat by the cooling system, 50 percent is rejected through the exhaust, and 10 percent or a little more goes into doing the useful work of transportation. An eight-cylinder car of one of the more expensive makes running at 60 miles an hour rejects, in the ways indicated, *sufficient heat to keep a seven-room house warm on a zero day*. On the face of it, therefore, it appears that unless there were important reasons for doing so, no one should consider burning still more fuel to produce heat for the interior of a car. If the thermostats are operating correctly in an engine, there will be an abundance of waste heat available, and it is not necessary or desirable to provide for burning still more fuel to produce heat for the interior of the car.

This heater will operate only when the engine is running, and in this respect, it is in the same class as the other common types of automobile heaters. Had its construction been such that it could operate when the car is parked and the engine not in use, there might have been justification for designing it to burn additional fuel for the benefit of those forced by circumstances to stay for considerable periods in a parked car. There have been reports that these heaters are not entirely safe. However, one of our automobile consultants in whose opinion we have great confidence thought that in the event of an explosion in one of these heaters, the worst that would occur would be a flash out of the air intake under the hood, which ought not cause serious damage unless in exceptional circumstances.

There is one condition under which the use of this type of heater might be considered regardless of its intrinsic lack of economy in operation. That is the case where a car is used, as by a doctor, for relatively short runs and relatively long stops, under which conditions the ordinary type of heater becomes practically ineffective. Last minute preliminary test data suggest that operating costs may be double those claimed by the manufacturer.

SIGNS AND PORTENTS

PRICES GENERALLY are up. New price rises are announced daily. Costs must be met. Increased taxes and higher labor costs have to be passed on to the consumer.

Normally, price rises spur buying. It looks as though a recovery is proceeding firmly toward more normal conditions in spite of new elements operating in our political life. And better prices all around should create confidence. This is justifiable, provided at the same time we make progress towards a balanced national budget. Such is the avowed purpose of the administration. More power to the purpose—and may it soon be evident in practice. ("In the Headlines," in *The American Perfumer*, September 1937.)

This gem of business wisdom appeared in September before the stock market went into its now noteworthy decline, and before all important indices of business activity showed a continually and sharply dropping curve now recognized as a major business recession. One lesson came out of the last depression which certainly should be taken to heart by politicians, businessmen, and labor leaders alike and that is that high prices afford no guaranty or index of prosperity. Now that people have become conscious of their rights as consumers, as never before, it is utter folly for politicians to talk and act as though the pushing up of prices of the things which people buy, or things which manufacturers use in production, is a means of bringing about business recovery—or any other sort of recovery whatever.

THE APPEARANCE of a new *Consumers' Research Bulletin* is always an event around the office. In spite of our professional interest in automobiles we usually turn first to the soap section to learn what will be safe to wash and shave with tomorrow morning.

This will introduce the fact that we'd like to know what our factory-connected readers can contribute on the subject of how much influence, good or bad commercially speaking, *Consumers' Research* opinions have had on the sale of their product. ("Just Among Ourselves," in *Automotive Industries*, October 2, 1937.)

We don't know what the replies to this item have revealed to *Automotive Industries'* editors, but of one thing we are sure, the Automobile Number of *Consumers' Research Bulletin* is second only to the *Annual Cumulative Bulletin* in the interest raised among consumer readers. Indeed some people tell us that the *Automobile Bulletin* alone is worth the price of a year's subscription. It will appear as usual this year, about the fifteenth of February.

REGULATION 41, adopted by the Louisiana State Board of Health "under authority of section 15" of the food, drugs, and cosmetic act of 1936, bans the sale of antifrat medicines in the State. The regulation is a concise one; it reads:—

The sale of proprietary drugs for reduction of body weight is prohibited by law in Louisiana.

Dr. J. A. O'Hara, president of the board, has issued a warning to manufacturers and dealers that this regulation "will be rigidly enforced in the interest of the protection of the public health."

Pursuing a policy of prohibiting the sale of objectionable drugs the board has revoked the registration certificate for "Van-Tage" on the grounds that claims were made for this

product which were "false and misleading in violation of act 142 of 1936, the State food, drugs, and cosmetic law, and contrary to the interest of the public health. ("Obesity Cures Sale Banned in Louisiana," in *Oil, Paint and Drug Reporter*, September 27 1937.)

What is your state doing to protect you against dangerous food, drugs, and cosmetics and from nostrums such as *Van-Tage*? *Van-Tage* is the invention of a Mr. Mosby whose earlier contributions to medical non-science were *Indo-Vin* and *Konjola*. The advertising of *Van-Tage* exploiters claimed that "it will work the bile from the liver as black as ink . . . drives the poisons from the kidneys and relieves backaches."

There is no reason why consumers should wait for the passage of a federal food, drug, and cosmetic law that will afford them decent protection. Get your state legislature busy on the job. CR has a draft suitable for proposal as a state Food, Drug, and Cosmetic Act which will be sent to consumers interested in improved protection for all under state food and drug legislation, without charge other than a three-cent stamp for postage.

IT IS NOW possible to build houses that working men can afford and which would last longer than the jerry-built houses which are going up for \$8,000 to \$10,000. It is now possible to build automobiles that would run 100,000 miles [500,000 miles would more accurately reflect the technical possibilities as to automobile durability] and give 30 or 40 miles to the gallon. Electric refrigerators that would last a lifetime can be built and sold at present prices. And if the dumb public has sense enough to ask for and insist upon getting such things, they could get them. But instead the public prefers to listen to big shots who tell them that houses should fall down when they are twenty years old and automobiles collapse when they have run 50,000 miles. (In *Postage and The Mailbag*.)

Consumer's Research has long pointed out that obsolescence is a very definite technique continually employed to keep goods selling at the faster and faster rate that mass-production manufacture and high-potential advertising and salesmanship together require for their most profitable operation. With the engineering and technical skills available in this country it is entirely possible to build and manufacture not only houses and automobiles and electric refrigerators, but washing machines, electric toasters, electric irons, and a host of other important kinds of consumer goods so well that they will give many times their present length of service and give much better and more trouble-free and expense-free performance while they last. The possibility that consumers may some day wake up to this fact was so alarming to the advertising, investment, and other businessmen that it was found necessary to do an extensive and elaborate journalistic job of discrediting the Technocracy movement—which a few years ago threatened to sweep the country with its alarming proposal that products could be made better and immensely more durable and cheap to operate than heretofore.

Ready February 15th!

the

AUTOMOBILE NUMBER

of

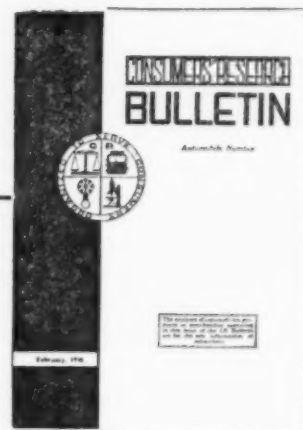
CONSUMERS' RESEARCH BULLETIN

Before buying a new 1938 car, consult this Bulletin for a comparison and rating by brand name of the 1938 models.

Each year for the past five years Consumers' Research has issued for the benefit of its subscribers a comprehensive discussion of the new features of the various makes and models, including ratings by brand name of all well-known cars, an explanation of depreciation, and advice on when to turn in a car to secure the best return on one's investment.

The February *Bulletin* this year will supply information on the 1938 automobiles similar to that of previous years. It will provide subscribers with expert opinions which will enable them to make their selections of a new car wisely, without relying on ballyhoo and sales talk. In CR's report the cars are divided into price groups and are rated A, B, or C within their own particular price range. This *Bulletin* will also present in chart form a comparison of the gasoline and oil consumption of four low-priced cars. Some advice on buying a secondhand car together with comments on certain defects found in specific models of previous years will be given in a forthcoming issue.

The February *Bulletin* is confidential and therefore available to subscribers only. For the convenience of those who are not subscribers and who may wish to consult CR's recommendations before buying a car, an application blank is included below. Subscription (in U.S. and Canada) is \$3 a year (foreign \$3.50). Bulletins are issued monthly except during July and August. All subscribers are sent without additional charge a copy of the current *Annual Cumulative Bulletin* which summarizes previous findings.



To Subscribers

Please tell your friends who are planning to buy a new 1938 automobile about the forthcoming Automobile Number. Both we and they will be grateful for your help in this respect.

CONVENIENT APPLICATION BLANK

CONSUMERS' RESEARCH, Inc.
WASHINGTON, N. J.

I am enclosing \$3.00 (foreign \$3.50) for one year's subscription to the Consumers' Research Bulletin, which includes the Annual Cumulative Bulletin number and other monthly Bulletins (except during July and August). It is understood that my handling of any CR material which is marked "The analyses of commodities, products, or merchandise appearing in this issue are for the sole information of subscribers" will be in accordance with that direction.

Signature.....
In Longhand, Please

Permanent Address.....
City State

Profession or Business.....
Jan.



ESPECIALLY FOR STUDENTS AND STUDY GROUPS

I

Consumers' Research *Annual Cumulative Bulletin*

Confidential \$1 per student

In order to make available on an economical basis a considerable part of CR's confidential material at a price within reach of student incomes, a special subscription consisting of the *Annual Cumulative Bulletin*, the *Introduction to Consumers' Research*, and several reprints such as "Testimonials C.O.D.," "Scot Tissue," "Gyp Row," sent in one mailing, is available to students for classroom use, at \$1 per student when each member of the class subscribes at this special rate or at the regular rate.

Teachers who are interested in using this material in class should write for the special student application blanks. Each student who will use the material must sign the special blank agreeing to keep the information confidential, before any material is issued to him. Further, every student in the class must sign the agreement before it is permissible for the instructor to discuss any of the test data and information given in confidential *Bulletins*.

II

Consumers' Digest with *Teachers' Manual and Study Outline*

Consumers' Digest is a new monthly magazine which presents in popular, readable fashion information of especial interest to consumers. Many of the articles and reports on commodities come from Consumers' Research *Bulletins* and from the books written from data in CR's files. *Consumers' Digest* lists commodities by brand name but presents only the *Recommended* listings. New articles especially written for this magazine appear each month, including directions for making a consumer's test of some commodity. "Gullible's Travels," by the managing editor, J. B. Matthews, delightfully satirizes current advertising and sales techniques.

Subscription is \$3 a year; single copies, 25c. Special rates are made for classroom or study groups as follows:

| No. of Copies | Rate |
|---------------|----------|
| 10-25 | 20c each |
| 26-100 | 15c each |

Plus one free copy for the instructor and one copy of the Teachers' Manual and Study Outline, each month.

Sample copies of *Consumers' Digest* and the Teachers' Manual and Study Outline will be sent on request to teachers contemplating using it in class.

III

Consumers' Research *General Bulletin*

Quarterly \$1.00

Consumers' Research *General Bulletin*, unlike most CR *Bulletins*, is not confidential. It is issued four times a year, in October, January, April, and June. It presents results of tests on various products, listing them by brand name in the same fashion as the *Annual Cumulative Bulletin*. Since it is not confidential, school libraries may subscribe and the *General Bulletin* may be freely used as reference where an entire class does not wish to avail itself of Offer I. Subscription rate for the volume year October through June is \$1. Subscriptions are entered for this period only.

IV

Consumers' Digest

6 Months for \$1

SPECIAL INTRODUCTORY OFFER

This special short term subscription is to accommodate the instructor who may be teaching Consumers' Problems for only one semester and may not wish to take advantage of Offer II. For those who request it, the monthly Teachers' Manual and Study Outline will be included free of charge. Please refer to Offer IV in sending in your remittance.